C-Fill the blanks from the list bellow (write the number the appropriate letter)

(20)

Crocus sativus var. *Cypica* is found in -1- while *C. sativus* var. β- *violaceus* is from -2-./ Tufted covering trichomes is found in -3-./The fresh saffron contains -4- which upon drying undergoes decomposition to -5- which on steam distillation gives -6- which is responsible for odor./ *Catharanthea (pervinca)roseus* Known as -7- and cultivated in -8- but *Cephaelis acuminata* , knowns as -9- and exported from -10- above of 11- varieties (A) are reddish-brown in colon and are the larger than -12- variety./ Strychnine is used as a -13-./ Reserpine is used in -14- while ajmaline is used for -15./Shaggy hair is found in -16-./The -17- are derivatives of -18-./ Socotrin aloes from -19- species while Cape aloes from -20-.

a- hypertensive	f- Cartagena	k-Zanzibar	p- Brazil	u- ergometrinine
b-lysergic acid	g- rodenticide	l- Rio	q- *Aloe ferox*	v-purgative
c- safranal	h- Cardiac arrhythmias	m- Protocrocin	r- Colombia	w-cinnamon
d- Spanish	i- *Arnica*	n- cumin	s- isolysergic a.	x- anise
e- Penang	j- Iran	o-ergometrine	t- picrocrocin	y-*Aloe perryi*

محمد الفقيه

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

D-Find 6 incorrect statements and re-write them in your answer sheet (20)

( ) *Rauvolfia serpentina* rhizome is different from *P. ipecacuanha* by the presence of Sclereids

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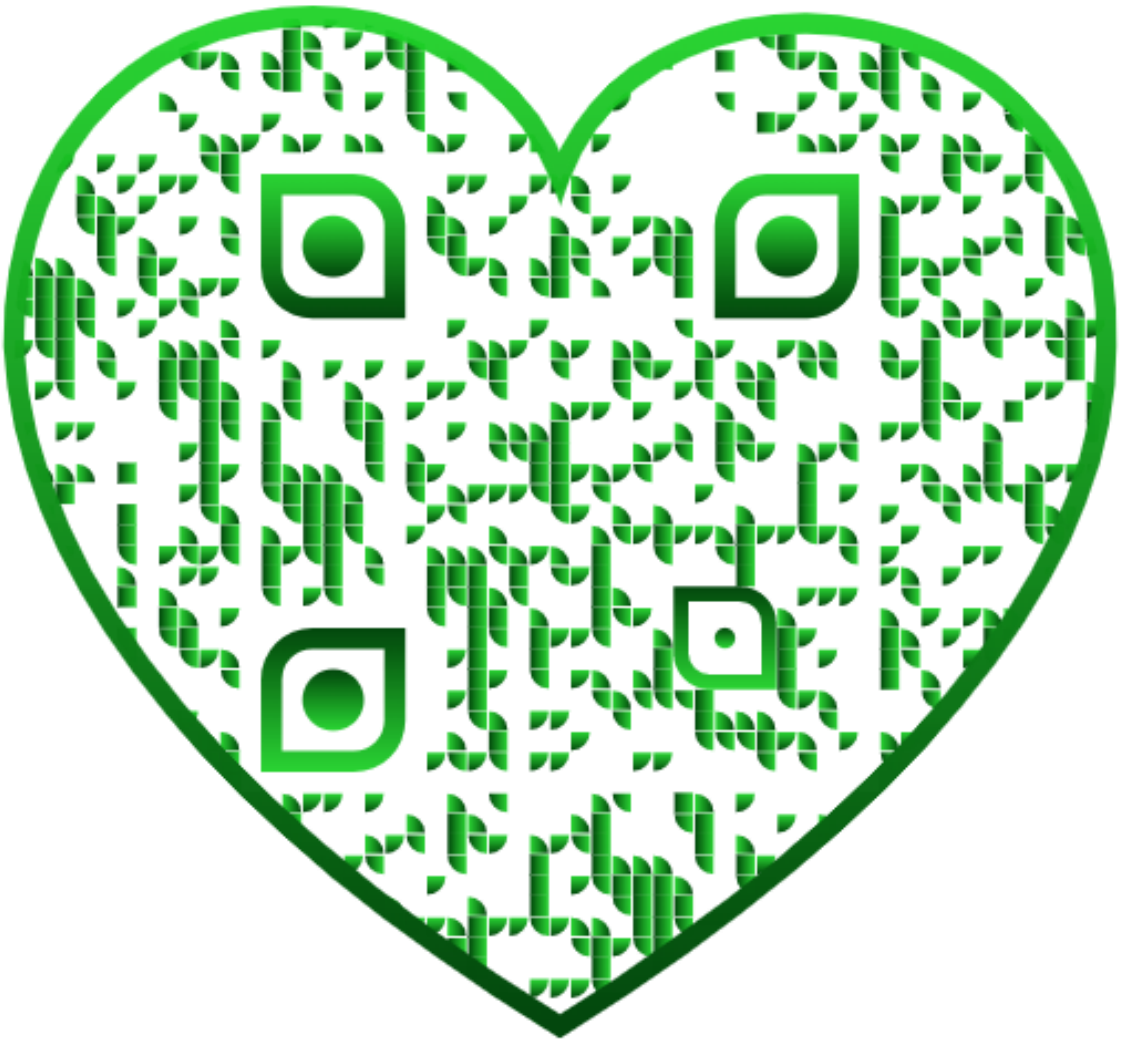

E-Answer the following questions10:

1-What is the active compounds and uses of the following plants:

	Botanical origine	compounds	uses
senna leaves		- anthraquinon- glyc - anthraquin- glyc - Tanni- - Resi- - flavonoid	- laxitive - purgiative
Digitalis (foxglove)	- Scrophulariacea	- Cardiac glycosid - anthraquinon " - saponin " - flavonoid "	- Cardiac tonic such congestive heart failu - escisti

محمد الفقيه

What is the advantages of cultivation of plants?

1- improve the quality and purity of medicinal plant

2- improve the quality of the crude drug.

3- To insure supply regular of the crude drug

to meet the demand of the market.

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Faculty of Sara's
Faculty of pharmacy

Final exam (Mid)
2nd year Pre-Pharmacy (male)

II-Choose the correct answer (20)

1- Sarsaponin is obtained from the
a- a small round pod
b- rhizome
c- root

2- Anthraquinones found in fresh is
a- outer layer
b- middle layer
c- inner flower buds

3- Ammoniac is used basically for
a- Peptic ulcer
b- Hypertension
c- Psoriasis

4- Non glandular hair with crystalite of $CaCO_3$ is found in
a- Xanthium strumarium
b- Cannabis sativa
c- Siberia officia

5- Which compound is responsible for the sweet taste of liquorice rhizome?
a- Glycyrrhizin
b- chalcone
c- tannin

6- Papaverine is the active compound of
a- Ammi visnaga
b- Hyoscyamus niger
c- Papaver somniferum

7- Test for aceberbalion give an color with
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

8- The seed of nux vomica is
a- exalbuminate
b- albuminous
c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

10- The powder of nutmeg seed contain:
a- Prism of $CaOx$
b- Cluster of $CaOx$
c- Prism of K-tartara

11- Thymidine is the component of
a- Acting gum
b- Guar gum gum
c- Tragacanth

12- Fixed oil glycoside can be found in
a- Senna flowers
b- Clove flowers
c- Chamomile flowers

13- All are flavonoids components except
a- hesperidin
b- rutoside
c- Glucose

14- The powder of flower buds of clove shouldn't contain
a- starch
b- prism of $CaOx$
c- both a and b

15- tannides of $CaOx$ are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

16- the flower of Artemisia abra is used as
a- antiinflammatory
b- Antiantioxidants
c- carminative

17- the seeds of cardamom should be separated recently to
a- avoid the loss of volatile oil
b- differentiate between different varieties
c- both a and b

18- Ergotamine is used for
a- migraine
b- labour
c- mental disorders

19- strychnine give a + ve test with:
a- Mandelin's reagent
b- conc. IHO_3
c- $FeCl_3$

20- Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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B-Chose the correct answer (10)

1-Clevenger apparatus is used to exract
a- alkaloids
b- volatile oil
c- glycosides

2- T-shaped nonglandular hair is found in
a- arnica flower
b- anise fruit
c- Pyrethrum flower

3-Mandelin's reagent is used to identify;
a- strychnine
b- brucine
c- both a and b

محمد الفقيه

4- clove powder with KOH give needle crystal due to the presence of;
a- K eugenate
b- K tannat
c- Both a and b

5- chamomile is used external for
a- travel sickness,
b- peptic ulcer
c- hemorrhoids

6-If sclerids found in clove means, it is adulterated with,
a- stalk
b- fruit
c- both a and b

7-seeds reserved food in
a- funicl
b- indosperm tissue
c- testa

8-blue color of chamomile oil is due to
a- Chamazulene
b- Bisabolol
c- Eugenol

9-K tactara prism is found in
a- Clove
b- Nutmeg seed
c- pyrethrum

10-Arnica is used
a- bruises and sprains
b- as laxative
c- heart attach

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10- high quality of clove sinks when placed in water

D- answer the following questions (4);

1- differentiate between Penang and Zanzibar varieties of clove.
2- What are the type of ovules

محمد الفقيه

E- Give a reason for (8)

- Pyrethrum is better than synthetic insectjcides e.gDDT .
- Cardamomseed should be recently separated
- large doses (15g) of nutmeg are toxic and producing convulsions and hallucination.
- saffron is considered one of the world's most expensive spices

E- Complete the table (13);

plant	Botanical name	Active compounds	uses
Santonica(wormseed)			
linseed			

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- saffron is considered one of the world's most expensive spices

- Complete the table (13);

plant	Botanical name	Active compounds	uses
Santonica(wormseed)			
linseed	محمد الفقيه		
Clove			
Fenugreek			

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ss,	a- bruises and sprains b- as laxative c- heart attach

statements and re-write them in your answer sheet (9)

ried flower of *Eugenia caryophyllus*(Fam. Myrtaceae) indigenous to Yemen

ydrodistillationgive crocin which is responsible for odor and aroma of saffron

andular hair is found in clove

محمد الفقيه

s used Topically as paste to treat acne.

edflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

wer is used used in toiletry and perfumery industry.

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University of Sana'a
Faculty of pharmacy

Final exam (2Hr)
3rd year Pharmacognosy (2019)

A-Give information (10):
1- T.S of fruit(seed of *Ammi visnaga*
2- microscopical character of nux vomica

B-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
c. *lobelia inflata*

5- Which compound is responsible for the sweet taste of liquorice rhizome;
a- Glycyrrhizin
b- chalcone
c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

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a- morphine
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a- Prism of CaOx
b- Cluster of Caox
c- Prism of K-tartara

11- Tragacanthin is the component of
a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmalin
c- Gitroxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- both a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

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b- Antianthelmintic
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a- avoid the loss of volatile oil
b- differentiate between different varieties
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b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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( ) the disadvantages of collection drugs from cultivated plant, is difficult to reach the plant.

( ) the amount and the nature of the active compounds of plants effect by season .

( ) leaves, bark and seeds are known as unorganized drug while gums and gelatin are known as organized drug.

( ) dragon's blood and colophony are consider as resin

( ) alkaloids are complex organic, non-nitrogenous plant products and responsible for astringent properties of plants.

( ) plants growing in their native countries are called indigenous to these regions while plant that not native are called exotic.

( ) Deficiency of N2 caused produces chlorosis while deficiency of P reduces plant size.

( ) alkaloids are responsible for the odor and taste of the plants.

( ) unofficial crud drugs is listed and described in Pharmacopoeia

C-Answer the following questions (10);

- What are the advantages of plant cultivation?
- Give 3 pharmacological action of alkaloids
- Classify tannins and mention the uses of them.

D- Define the following words(5); Deterioration, glcosides, crud drugs,

E-Give a reasons (6);

- Barks are usually collected after raining
- Drying is important for crud drugs

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C-Fill the blanks from the list bellow (write the number -the appropriate letter) (15)

Herbs and fruits are known as -1- drugs while agar and gelatine are known as -2- drugs. *Cassia senna* indigenous in -3- and cultivated in -4-./ **Senna** leaves can cause K deficiency therefore it may effect on -5-./ Plants growing in their native countries, is -6- to these regions while plants not of native origin are called -7- plants. The shape of -8- leaves are sessile and linear lanceolate while -9- leaves are ovate-lanceolate with decurrent base./ the suitable time for Digitalis leaves collection is in the -10-./ **Deficiency of** : -11- produces chlorosis. -12-reduction of plant size and -13- reduction of carbohydrate synthesis./ -14- is the addition of an inferior material drug to another materials accidently while -15- is the addition of an inferior material to any crud drugs with intent to defraud.

a- Admixture	e- Substitution	i- Digitalis purpurea	m- monocotyledon	q- organized
b- heart function	f- K	j- Sudan	n- dicotyledon	r- T
c- afternoon	g- Tropical Africa	k- Sudanization	o- Indian	s- indigenous
d- N_2	h- exotic	l- Digitalis lanata	p- morning	t- adulteration

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
q	n	g	j	b	s	h	l	i	c	d	r	f	a	k

D-Find 6 incorrect statements and re-write them in your answer sheet (12)

1-(X) crud drug is the products from synthesis chemical compound found it a raw form Crud drug is the products from natural source

2-(X) among the disadvantages of collection of drugs from cultivated plants is difficult to reach the plant.

3-(✓) *uniseriate, multicellular, coiled and hairy* related covering trichome *is characteristics of digitalis*

4-(✓) The amount and sometimes the nature of the active compounds of plants effect by season.

5-(✓) Leaves, flowers and fruits should be collected when covered with dew or rain.

6-(✓) dragon's blood and colophony are consider as a resin.

7-(X) glycosides are complex organic, non-nitrogenous plant products, and have astringent properties Tannins

8-(X) Isoatroside A is different from purpea glycoside A in the presence of OAC

9-(X) alkaloids is responsible for the odors of plant. volatile oil

10-(X) unofficial Crude drugs is listed and described in Pharmacopoeia. official

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A-Diagramatize (10);

1- T.S of Datura pupura

2- microscopical character of senna leaves

B-Chose the correct answer (15)

1- the name of *Digitalis purpurea* is depend on;

a- geographical source
b- certain aroma
c- characteristic color

2-collapsed celled covering tirchome is found in

a- senna leaves
b- digitalis leaves
c- buchu leaves

3-contraindication of digitalis is

a- congestive heart failure
b- Cerebral haemorrhage
c- auricular fibrillation

4- if origin of crud drug from plant it is called;

a. Botanical origin
b. zoological origin
c. both a and b

5- short-day conditions peppermint leaves contain

a- menthone,
b- menthol
c- menthofuran

6-senna leaves is contraindication in all except;

a- Intestinal obstruction
b- Laxative
c- Colitis

7-11-Functions of a pharmacognosist

a- know of the constituents of drugs
b- Know the potency of the drug
c- Both a & b

8-Borntrager test is used to test

a- alkaloids
b- tannins
c- anthraquinones

9-all these compound are Cardiac glycosides except

a- Digitoxin
b- Digitoxigenin
c- Gitoxin

10- which hormone *induce flowering at earlier stages;*

a- Gibberellins
b- *abscisic acid*
c- *ethylene.*

11-Senna leaflets have

a- an isobilateral structure
a- a Bifacial structure
b- both a and b

12-importance of drying plants is to;

a- Improve growing of plant.
b- Preserved for longer time.
c- Inhibit growing of plant.

13- freez drying is suitable when

a- the volatile oil of the drug are needed
b- plant sensitive to high temperature
c- the plant quite stable to heat

14- Reason for adulteration;

a- Deficiency of the drug
b- prohibited drugs
c- both a and b

15- nitrogenous compounds is called

a- alkaloids
b- glycosides
c- tannin

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University of Sana'a

midterm exam (2hr)

Faculty of pharmacy

3rd year pharmacognosy 2014

A. Diagrammatize (10):

1- The key elements of Egyptian henbane that distinguish it from European henbane.

2- A T.S in the midrib of *Datura stramonium*.

B-Chose the correct answer (12)

1- Morphological of crud drug can be classify depend on:
- a- External characters of the plant parts.
- b- Alphabetical order
- c- Their pharmacological action

2- Botanical origin is the origin of a drug from
- a- plants
- b- animals
- c- both a & b

3- Deficiency of N_2 in soil can cause
- a- reduction of plant size
- b- reduction of carbohydrate synthesis
- c- chlorosis

4-Active element in soil is
- a- sodium
- b- calcium
- c- iron

5- Keller-killiani is test for
- a- glycosides
- b- digitoxose
- c- tannins

6-all the affects are true for gibberellins except:
- a- induce flowering at earlier stages
- b- Increase the length of the dwarf
- c- Inhibit the seed germination

7- Alkaloid is a
- a- sugar portion linked to a non-sugar moiety
- b- nitrogenous compound
- c- terpen compound

8- All are bifacial structure except:
- a- senna
- b- digitalis
- c- datura

9-senna is used in
- a- Intestinal obstruction
- b- Constipation
- c- appendicitis

10- *Digitalis purpurea* is contraindication in
- a- heart failure
- b- auricular fibrillation
- c- Cerebral haemorrhage

11-hairs containing calcium carbonate are found in:
- a- Datura stramonium
- b- *Xanthium strumarium*
- c- Both a & b

12-bluntly pointed, collapsed celled covering tirchome is found in:
- a- Digitalis
- b- Senna
- c- Datura

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Quiz D

1- Senna side A is
a- C-glycosides
b- O-glycosides
c- Both a and b
d- S-glycosides
e- N-glycosides

2- Keller-kiliani test is used to detect
a- Alkaloids b- Tannins c- Essential oil d- cardiac glycosides

3- this Key element is branched multicellular glandular trichomes found in Hyoscyamus muticus & Solanaceae

4- Defin Alkaloids ? They are alkali likes sub they are basic nitrogenous compounds of plant origin which have complex molecular structure have many pharmacological activity
Divided to a) Heterocyclic b) Non heterocyclic

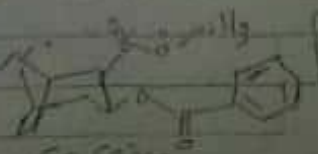
5- Which plant does lanatoside A come from?
is D. lanata (fam. Scrophulariaceae)

6- factors affecting in collection of crud drugs
a) Season b) Age c) day and night

7- what Plant can You find this structure ?
Name the elements at arrow place?
found in Atropa belladonna fam. solanaceae.

10 atoms

8- drawed this structur and its uses ?
this is Cocaine
uses:- mostly used in ophthalmic, oro nose and throat surgery



	a- bruises and sprains b- as laxative c- heart attach

statements and re-write them in your answer sheet (9)

ried flower of *Eugenia caryophyllus*(Fam. Myrtaceae) indigenous to Yemen

ydrodistillationgive crocin which is responsible for odor and aroma of saffron

andular hair is found in clove

s used Topically as paste to treat acne.

dflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

ver is used used in toiletry and perfumery industry.

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Quiz B **Name;**

1- Toxicity of the boldo oil is as a result of

a- P-cymene
b- Limonene
c- Ascaridol
d- Coumarin

2- Sudan III is used to identified

a- Alkaloids
b- Essential oils
c- Glycosides
d- Tannins

3- This key element is Twin (Ca. ox) crystal found in (Hyoscyamus niger / European henbane) (Fam. Solanaceae)

4- What plant does disphenol come from? (Buchu / Barosma betulina) Fam. Rutaceae

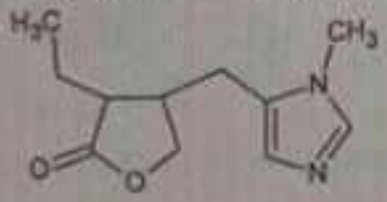
5- Define Crude drug

6- Factors affecting cultivation

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place?

Type :- T.S: Foliar structure
plant :- Digitalis purpurea

8- Name of this compounds and its uses



(pilocarpin)

uses :-
- used in glaucoma
- used in opthalmic surgery.

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Quiz A **Name:**

1- The major alkaloids of Datura leaves are

a- Hyoscyamine
b- Hyoscine
c- Both a and b
d- Hyoscyamine, atropine and Hyoscine

2- Mayer's test is used to identify

a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

3- This key element is non glandular found in Digitalis Purpurea (Fam. Scrophulariaceae)

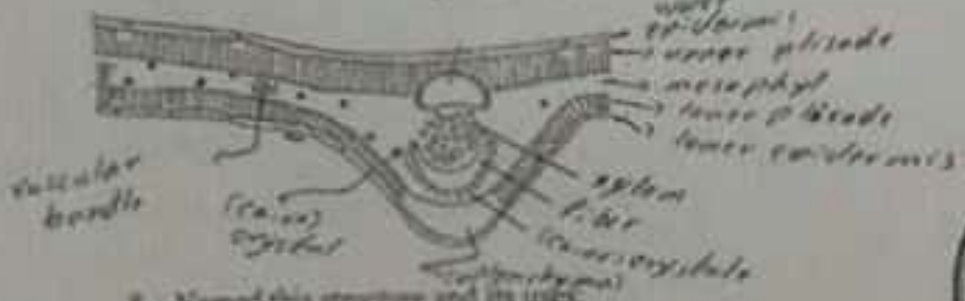
4- What plant does boldine come from? (Peumus boldus Molina) (Fam. Monimiaceae)

5- Define Pharmacognosy?

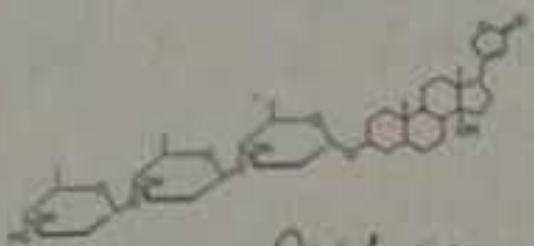
6- What are the Factors affecting in drug production?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place?

Type :- Isobilateral structure
plant :- Senna



8- Named this structure and its uses.



Digitoxin

uses :- Treatment of congestive heart failure
2) Arrhythmia

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University of Sana'a
Faculty of pharmacy

Final exam (2Hr)
3rd year Pharmacognosy (2015)

A-Diagrammatize (10):
1- T.S of linseed or *Ammi visnaga*
2- microscopical character of nux-vomica

B-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
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5- Which compound is responsible for the sweet taste of liquorice rhizome:
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c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
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c- Curacao aloe

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a- exalbuminaus
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c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

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a- Prism of CaOx
b- Cluster of Caox
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a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmalin
c- Gitoxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- *both* a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

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b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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C-Fill the blanks from the list bellow (write the number -the appropriate letter) (10)

Herbs and fruits are known as -1- drugs while sap and gelatine are known as -2- drugs. Cassia senna indigenous in -3- and cultivated in -4- // Senna leaves can cause K deficiency therefore it may affect on -5- // Plants growing in their native countries, is -6- to these regions while plants not of native origin are called -7- plants. The shape of -8- leaves are sessile and linear lanceolate while -9- leaves are ovate-lanceolate with decurrent base // the suitable time for Digestic leaves collection is in the -10- // Deficiency of : -11- produces chlorosis, -12-reduction of plant size and -13- reduction of carbohydrate synthesis// -14- is the addition of a drug to another materials accidently while -15-is the addition of an inferior material to any crud drugs with intent to defraud.

a- Admixture	e- Substitution	i- Digestic purgative	m- indigenous	q- exhaustion
b- heart function	f- K	j- Senna	n- exhausted	r- 6
c- afternoon	g- Tropical Africa	k- Saccharomyces	o- fluorine	s- indigenous
d- N_2	h- exotic	l- Digestic leaves	p- morning	t- exhaustion

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
q	n	j	i	b	s	h	l	t	c	o	t	f	a	k

D-Find 6 incorrect statements and re-write them in your answer sheet (12)

1-(X) crud drug is the products from synthesis chemical component found in a raw form Crud drug is the products from natural sources

2-(X) among the disadvantages of collection of drugs from cultivated plants is difficult to reach the plant.

3-(✓) unicellular, multicellular, collapsed coiled and blandy pointed covering trichome is characteristics of digestic

4-(X) The amount and sometimes the nature of the active components of plants effect by season.

5-(✓) Leaves, flowers and fruits should be collected when covered with dew or rain.

6-(✓) dragon's blood and colophony are consider as a resin.

7-(X) Tannin are complex organic, non-nitrogenous plant products, and have astringent properties

8-(X) lanatoside A is different from palmo glycoside A in the presence of

9-(X) alkaloids is responsible for the odors of plant.

10-(X) analytical Crude drugs is found and described in Pharmacopoeia.

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Quiz D

name;

5

1- Sennoside A is

a- C-glycosides
b- O-glycosides
c- Both a and b
d- S-glycosides

2- Keller-kiliani test is used to detect

a- Alkaloids
b- Tannins
c- Essential oils
d- Cardiac glycosides

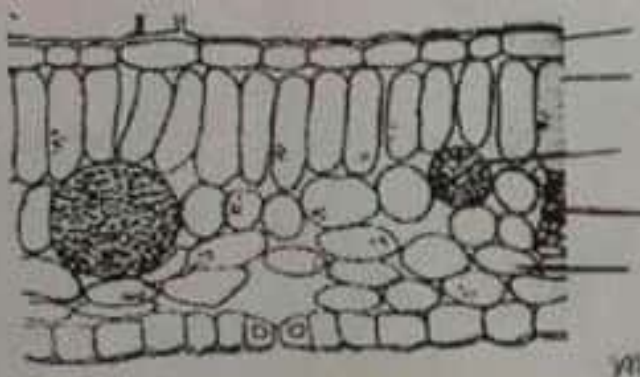
3- This key element is _____ _____ found in _____

4- Define Alkaloids

5- What plant does lanatoside A come from?

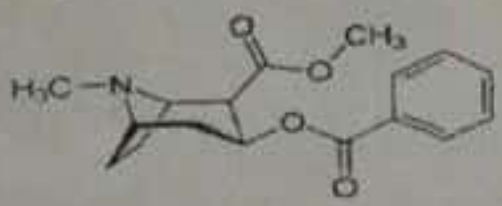
6- Factors affecting in collection of crud drugs

7- What plant can you find this structure? Name the elements at the arrow place?



mention

8 Named this structur and its uses



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C- Fill the blanks from the list bellow (just write the number -the appropriate letter) (12)

Crud drugs which are sensitive to higher temperature are dried in -1- while -2- is suitable for highly sensitive to atmospheric condition. -3- is an impairment of the quality a crud drug by distillation while -4- is the addition of an inferior material to any crud drugs with intent to defraud. Alexandrian senna is known as -5- cultivated in -6-. The cardiac glycosides-7- and -8- are obtained from-9- leaves. *Hyoscyatnus niger* is cultivated in -10-. -11- are ester of a sugar and a phenolic compound e.g -12-.

A.Sophistication	D. Egypt	G. Europe	J. Condensed tannins	M. gallic	P. *Hydrolysable* tannins
B.*Cassia senna*	E. digitoxin	H. Spray drying	K.Deterioration	N. Sudan	Q. gitoxin
C.Alexandria	F. Oven drying	I. foxglove	L. *Cassia angustifolia*	O. Freez drying	R. digitoxigenin

1	2	3	4	5	6	7	8	9	10	11	12
C	I	A	D	B	G	F	J	E	O	R	L

D- Answer the following questions (16):

1-Define unorganized drugs? drug consisting action effective in Body

2-What are the advantages of cultivation? - less leave 2-

3-Give the main active compounds and uses of 2 drugs:

Belladonna, senna, hyoscyamus, digitalis

4-What is the chemical test for the five member ring of digitalis?

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Quiz D

name;

5

1- Sennoside A is

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c- Both a and b
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6- Factors affecting in collection of crud drugs

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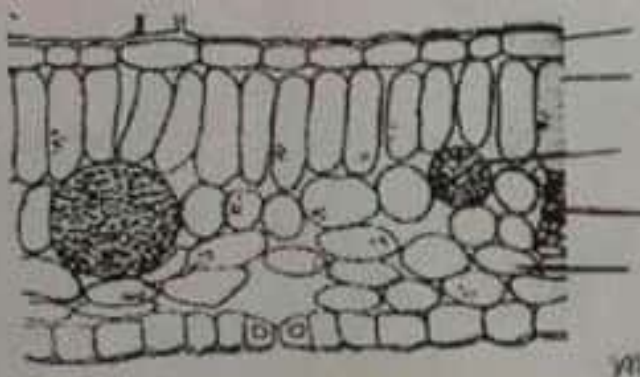
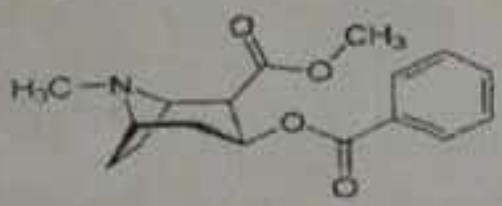


mention

8 Named this structur and its uses



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حل نماذج العقاقير C/D
مراجع من د/ بشرى

Quiz C: Name:

1- Anthraquinone glycosides of Senna leaves are

(A) Aloe-emodin
(B) Kaempferol
(C) Naphthalene
(D) Isothamnetin

2- Wagner's test is used to identify

(A) Alkaloids
(B) Glycosides
(C) Hyoscyamine
(D) Volatile oils

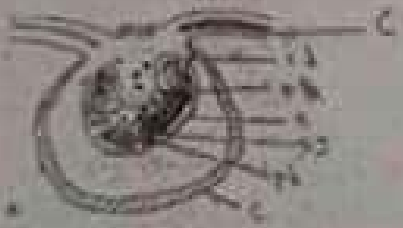
3- This key element is Stellate cluster found in Pharmacognosy building medicinal unicellular covering trichomes Cardiac leaf

4- What plant does pilocarpine come from? Jaborandi Type: Pilocarpus microphyllus maranthem Subspandi

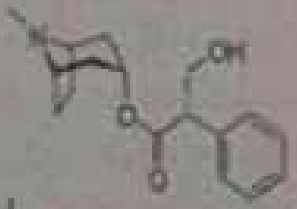
5- Define adulteration

6- What are the Factors affecting in soil quality?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place? bifacial structure → Datura stramonium



8- Named this structure and its uses (2 uses)



hyoscyamine

uses @ for anti

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C- Fill the blanks from the list bellow (just write the number -the appropriate letter) (12)

Crud drugs which are sensitive to higher temperature are dried in -1- while -2- is suitable for highly sensitive to atmospheric condition. -3- is an impairment of the quality a crud drug by distillation while -4- is the addition of an inferior material to any crud drugs with intent to defraud. Alexandrian senna is known as -5- cultivated in -6-. The cardiac glycosides-7- and -8- are obtained from-9- leaves. *Hyoscyatmus niger* is cultivated in -10-. -11- are ester of a sugar and a phenolic compound e.g -12-.

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1	2	3	4	5	6	7	8	9	10	11	12
E	E	A	D	B	G	F	J	E	O	R	L

D- Answer the following questions (16):

1-Define unorganized drugs? drug containing active effective in Body

2-What are the advantages of cultivation? - less leaves -

3-Give the main active compounds and uses of 2 drugs:
Belladonna, senna, hyoscyamus, digitalis

4-What is the chemical test for the five member ring of digitalis?

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f.) Aggregate fruit formed from a single flower with many ovaries e.g. blackberries.

i.) Alcoholic extract of the *Ammi visnaga* fibs blue fluorescence in UV.

II- Answer the following questions (3f5):

1- What is the active compounds and uses of the following plants:

	Botanical origin	compounds	uses
Fenugreek			
Ammi visnaga			
Vinca			
Dragons' blood			

What are the advantages of pyrethrum as insecticide over the synt

ecticides?

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Quiz D name:

1- Sennoside A is

a- C-glycosides
b- O-glycosides
c- Both a and b
d- S-glycosides

2- Keller-killiani test is used to detect

a- Alkaloids
b- Tannins
c- Essential oils
(d)- Cardiac glycosides

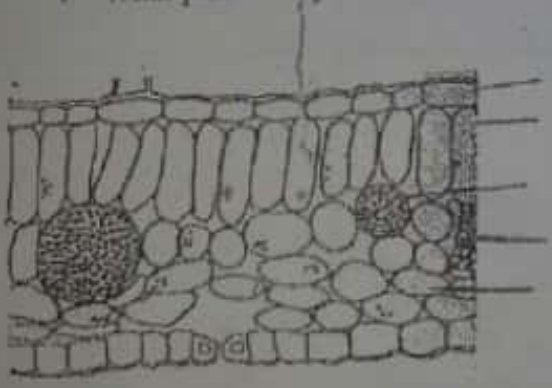
3- This key element is_____ _____ found in_____

4- Define Alkaloids

5- What plant does lanatoside A come from?

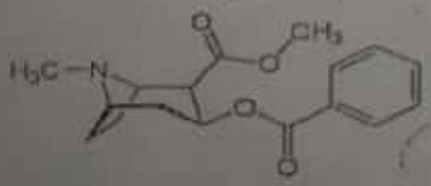
6- Factors affecting in collection of crud drugs

7- What plant can you find this structure? Name the elements at the arrow place?



T.s of Portion of Lamina

8 Named this structur and its uses (2



hyoscyamin

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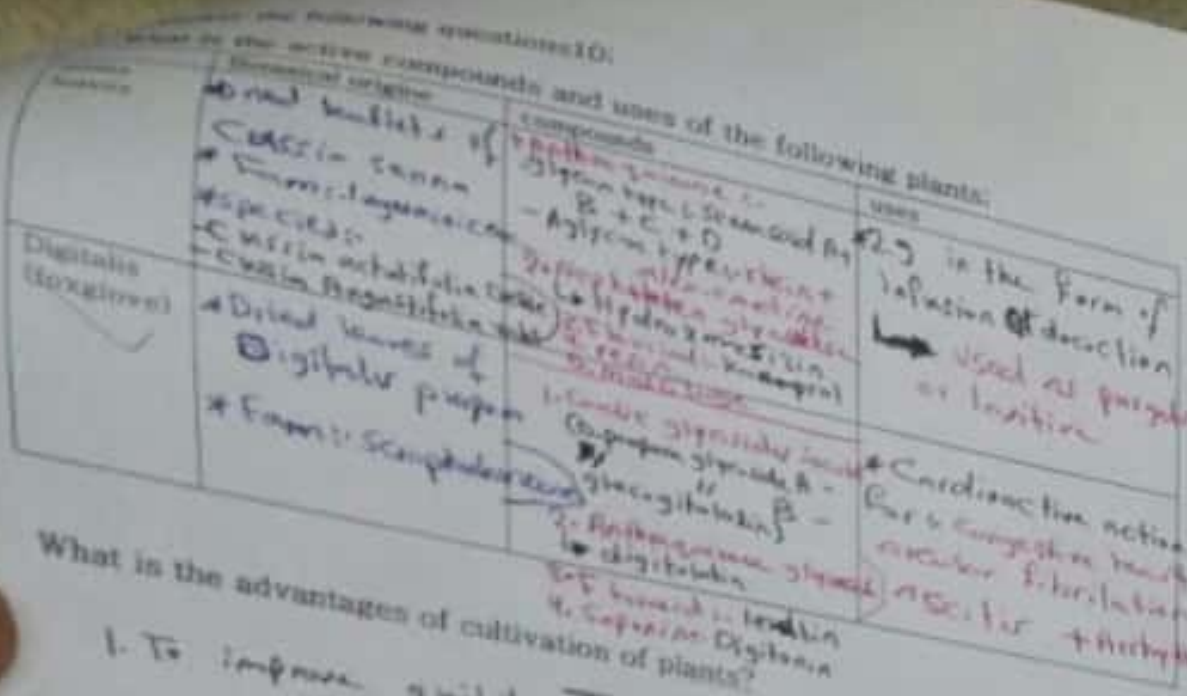

What is the advantages of cultivation of plants?

1. To improve quality and purity of the drug
   - activation of rhizomes need suitable amount of
   - and proper irrigation
   - → Systemic cultivation results in having a crop with maximum content of volatile oil eg: cultivation of cinnamon
   - → If the cultivated plants are kept away from microbial growth → no contamination
2. To improve the quality and therapetic quality
   - → this needs: 1. professional excellence in developed
   - → [Examples: wheat powdered digest
     - nicotine pungency
     - pure powder
3. To insure regular supply of crude drug

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Quiz A

Name:

1- The major alkaloids of Datura leaves are

a- Hyoscyamine
b- Hyoscine
c) Both a and b
d) Hyoscyamine, atropine and Hyoscine

2- Mayer's test is used to identify

a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

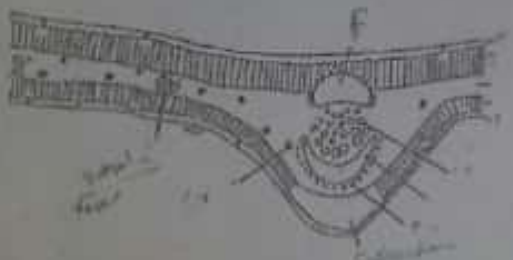
3- This key element is _____ found in _____

4- What plant does boldine come from?

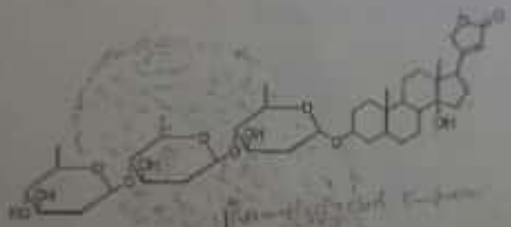
5- Define Pharmacognosy?

6- What are the Factors affecting in drug production?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place?



8- Named this structure and its uses.



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University of Sana'a
Faculty of pharmacy

Final exam (2hr)
3rd year Pharmacognosy (2015)

A-Diagramatize (10):
1- T.S of linseed or *Ammi visnaga*
2- microscopical character of nux-vomica

B-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
c. *lobelia inflata*

5- Which compound is responsible for the sweet taste of liquorice rhizome:
a- Glycyrrhizin
b- chalcone
c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

8-The seed of nux vomica is
a- exalbuminaus
b- albuminaus
c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

10- The powder of nutmeg seed contain:
a- Prism of CaOx
b- Cluster of Caox
c- Prism of K-tartara

11- Tragacanthin is the component of
a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmalin
c- Gitoxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- *both* a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

16- the flower of *Artemisia cina* is used as:
a- antiinflamation
b- Antianthelmintic
c- cardiotonic

17- the seeds of cardamom should be separated recently to
a- avoid the loss of volatile oil
b- differentiate between different varieties
c- both a and b

18- Ergotamine is used for
a- migraine
b- labour
c- mental disorders

19- strychnine give a + ve test with:
a- Mandelin's reagent
b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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C-Fill the blanks from the list bellow (write the number the appropriate letter)

(20)

Glycyrrhiza glabra var. *Typica* is found in -1- while *G. glabra* var. β- *violacea* is from -2-/ Twisted covering trichomes is found in -3-/The fresh Saffron contains -4- which upon drying undergoes decomposition to -5- which on steam distillation gives -6- which is responsible for odor./ *Carapichea ipecacuanha* Known as -7- and cultivated in -8- but *Cephaelis acuminata* , known as -9- and exported from -10- /Above of 11- varieties (A) are reddish-brown in color and are the larger than -12- variety./ Strychnine is used as a -13-./ Reserpine is used in -14- while ajmaline is used for -15-/Shaggy hair is found in -16-/The active members of ergot alkaloids are derivatives of -17- e.g -18-./ Socotrine aloes from -19- species while Cape aloes from -20-.

a- hypertensive	f- Cartagena	k-Zanzibar	p- Brazil	u- ergometrinine
b-lysergic acid	g- rodenticide	l- Rio	q-*Aloe ferox*	v-purgative
c- safranal	h- Cardiac arrhythmias	m- Protocrocin	r- Colombia	w-cinnamon
d- Spanish	i- *Arnica*	n-cumin	s- isolysergic a.	x- anise
e- Penang	j- Iran	o-ergometrine	t- picrocrocin	y-*Aloe perryi*

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

D-Find 6 incorrect statements and re-write them in your answer sheet (20)

( ) *Rauvolfia serpentine* rhizome is different from *R. vomitoria* by the presence of Sclereids and has wider vessel.

( ) *Annulation* in Rio root is very crowded and more projecting than Cartagena root

( ) Cannabis consist of the dried flowering and fruiting tops of male plants of *Cannabis sativa* and cultivated in Europe.

( ) Clove is the dried flowering bud of *Eugenia caryophyllus* contains not less than 15% v/w of volatile oil

( ) The flower heads of Santonica should be collected before expanding during July and August to yield 3% of the active compound, chromosantonin.

( ) Addition of chloralhydrate to the powder of nutmeg showed fat crystals as result of the presence of tannins.

( ) The clove is in good quality when floats in water which is boiled then cold.

( ) The flowers of pyrethrum are not toxic to insects unless it is dried.

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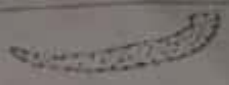
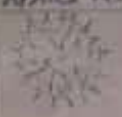
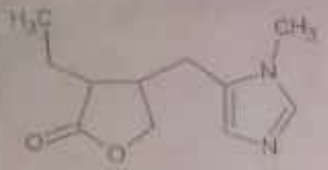
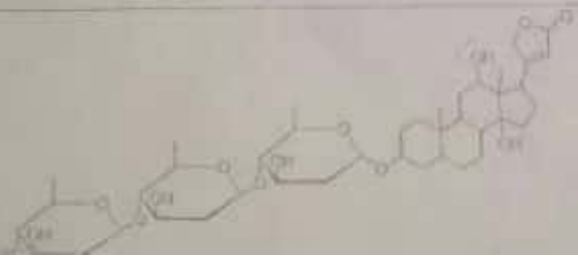
Q. Name and in which plant (scientific name) you find the following elements (12)

			
Name element	fibre annual cauline tracheides	epidermal cell with wavy wall with thick cuticle multiple stoma	uni cellular non glandular hairs is pits and
Name of plant	aconite napellus	Atropa belladonna	(Cocoa Senna - Cassia angustifolia) &
			
Name element	spherical pollen grain	sclereide	covering trichomes is bifurcate at one to more cellular
Name of plant	chrysanthemum	Cinnamomum zeylanicum	lavandula angustifolia Mill

Q- Name compounds, from which plant (common name) can be found and their uses (10)

Name compounds	Name plant	uses
 pilocarpin	jaborandi (Maranham)	glaucoma to contraction of the pupil for eye wheal surgery
sennoside	Senna	laxative
	digoxin digitalis	- congestive heart failure - arrhythmia

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C

حل نماذج العشاقير C/D
مراجع من ز/ بشرى

Quiz C1 Name:

1- Anthraquinone glycosides of Senna leaves are

(a) Aloe-emodin
(b) Kaempferol
c- Naphthalene
(d) Isoflavonoids

2- Wagner's test is used to identify

(a) Alkaloids
f- Glycosides
(b) Hyoscyamine
h- Volatile oils

3- This key element is Stellate clustered found in Peumus boldus molina Fam. monimiaceae (Boldo leaf)
unicellular covering trichomes

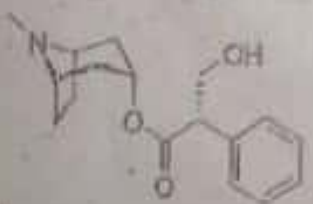
4- What plant does pilocarpine come from? Jaborandi Type I & Pilocarpus microphyllus
maranthem Jaborandi

5- Define adulteration

6- What are the Factors affecting in soil quality?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place? bifacial structure
Datura stramonium

8- Named this structure and its uses (2 uses)



hyoscyamine
used
1- for arrhythmia
2- as spasmolytics in gastrointestinal & bile ducts disorder

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* Alkaloid can be considered as organic nitrogenous substances, usually found in plants and they are basic in nature

* traditional definition of Alkaloids includes the following components :-

1. Alkaloids are natural substances that incorporate a nitrogen atom (usually in heterocyclic ring) and basic
2. Alkaloids bases are soluble in no. of organic solvents, but they are rather insoluble in water
3. Alkaloids react with the general reagents of alkaloids and give characteristic colour reaction
4. Alkaloids show potent pharmacological properties in small doses

* Essential oil :- Complex mixture of odoriferous and volatile substances originating from plants.

* Tow main preparation procedure :-

1. Steam distillation :- most common procedure.
2. Expression :- it used for example on pericarps of citrus fruits

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[1] [A] Choice The Correct Answer of the Following:

[1] Belladona alkaloids are :-
- [a] Tropane alkaloid
- [b] pyrul alkaloid
- [c] piperidine alkaloid

[2] Van Urk reaction is used to Identify :-
- [a] Opium
- [b] Belladona alk.
- [c] Ergot alk.

[3] Aconitine is a
- [a] Neurotoxic alk.
- [b] Spasmodic alk.
- [c] Cardiovascular alk.

[4] All tesb components are found in coca except
- [a] Cinnamyl Cocai
- [b] Cocaine
- [c] Atropine

[5] Opium with Fecl3 resulted red color because of the presence
- [a] Morphine
- [b] Codaine
- [c] Meconic acid

[6] Migrain is treated with
- [a] berberine
- [b] Ergometrine
- [c] Ergotamine

[7] The anti-microbia activites of ~~hydrasty~~ hydrastis root against Mycrobium tuberclosis is due to
- [a] berberine
- [b] Hydrastine
- [c] essential oil

14-A7

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- saffron is considered one of the world's most expensive spices

I- Complete the table (13):

plant	Botanical name	Active compounds	uses
Santonica(wormseed)			
Fennel			
Clove			
Fenugreek			

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a- travel sickness,
b- peptic ulcer
c- hemorrhoids

10-Arnica is used
a- bruises and sprains
b- as laxative
c- heart attach

C-Find 6 incorrect statements and re-write them in your answer sheet (9)

1-Cloves are the dried flower of *Eugenia caryophyllus*(Fagr. Myrtaceae) indigenous to Yemen

2-picrocrocin on hydrodistillationgive crocin which is responsible for odor and aroma of saffr

3-branched nonglandular hair is found in clove

4-saffron flower is used Topically as paste to treat acne.

5-saffron is Driedflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

6-Lavenderflower is used used in toiletry and perfumery industry

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- Constituents;
- Mucillage 28%, fixed oil 6%, proteins 22%, and alkaloids (trigonelline), saponine glycosides (dioscin gly.)
- Uses;
- Nutritive because of the mucilage, fixed oil and aleurons grains.
- Demulcent and emolient.
- As lactagogue

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Name:

1- Colchicines is used to
a- relieve any type of pain
b- treat gout
c- inhibit blood pressure
d- treat arrhythmia

2- Menispermaceous tube alk-curare contain;
a- tubocurarine
b- c-calebassine
c- curine
d- o-toxiferine

3- Bisindol alkaloids are composed of
a- Indol and dihydroindole units
b- Vindoline and cantharanthine
c- Indol unit and Vindoline
d- Cantharanthine and indole units

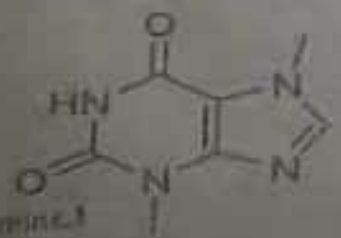
4- Mandelin's reagent give violet color with;
a- Brucine
b- Strychnine
c- Caffeine
d- Morphine

5- Noscapine has ;
a- sedative effect
b- antispasmodic effect
c- antitussive action

6- Mention 3 general pharmacological activities of alkaloids? (with examples of alkaloids)

7- What plants contain papaverine? by incision from the unripe capsules of papaver somniferum

8- Name the following structure and its use



: theobromine

It has diuretic effect & used in edema.

6- pharmacological activities :
1- as CNS depressant (morphine, scopolamine) or CNS stimulant (strychnine, caffeine)
2- Have sympathomimetics (ephedrine) or sympatholytic (yohimbine), parasympathomimetic (pilocarpine) or ganglionic stimulant (nicotine).
3- Have local anesthetic (cocaine)
4- anti cancer (vinblastine)
5- antibacterial (berberine) & antibiotics (penicillin & tetracyclines)

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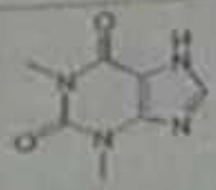		
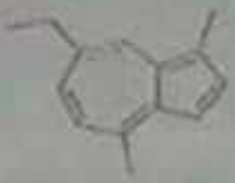		

d-Fill the blanks from the list bellow (just write the number -the appropriate letter) (14):

Crack cocaine is administered by ..1../ Quinine is the active compound of..2..and used to treat ..3../ Iodic test is used to identify ..4.. /..5.. is the latex obtained by incision of capsules of *Papaver somniferum* ./ Physostigmine is oxidized into ..6.. therefore it should be protected from air./ Taxol is the active compound of ..7.. and used as ..8.. / Arnica is used locally as tincture for ..9.. and ..10../ Cephaline ,n methylation becomes ..11.. which is used as ..12../ Noscapine is an ..13.. alk. and used for..14..

a- Yew	g- opium	m- cautic	s-sprains
b- Plantago	h- injection	n- immdeficiency	
c- Smoking	i- malaria	o- bruises	
d- Cinchona	j-chamomile	p- amoebic dysentery	
e- Arrhythmia	k-morphine	q- isoquinoline	
f- Thebaine	l- rubrexcrine	r- anticancer	

1	2	3	4	5	6	7	8	9	10

11	12	13	14

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B-Find 6 incorrect statement and write the correct once in your answer sheet (18):

( ) Glyceryl ester is the components of volatile oil while hydrocarbons are the active compounds of fixed oil.

( ) Universal enzyme is the enzyme that can hydrolyse more than one glycosides while specific enzyme hydrolyse only a single glycoside.

( ) Camphor is a bicyclic terpene ketone, obtained from the wood and bark of the camphor tree by steam distillation.

( ) UV spectra of flavonoids in MeOH show two absorption bands I and II. Band I is due to the benzoyl system.

( ) Constituents of volatile oils belong to 2 main groups: aromatic (derived from acetate) and the terpenoids compounds (phenylpropanoids).

( ) Glycosides contain sugar therefore it can reduce fehling's soltution.

( ) Coniferin, obtained from pine tree, is hydrolyzed by enzyme into coniferin alcohol follows by oxidation yielding vanillin, a flavouring agent

( ) Glycosides of anthrones have a more drastic action than the corresponding anthraquinone glycosides.

( ) The acetal linkage between the individual sugars of the sugar chain part is easier cleaved than the linkage between aglycone and sugar.

( ) Increases the number of sugar units in cardiac glycosides led to increase the potency.

C- Answer the following quisions (30):

I-What are the suitable methods for the extraction of citrus fruits?

II-Define:

-Pomade

-Cyanogenic glycosides

III-Give reasons for

1- Pregnant women shouldn't used Fennel oil.

2- Cardamom should not be used in high dose with people have gallstones.

3- People with bleeding disorders should take care when use Clove oil

4- Cinnamon bark should be avoided in pregnancy.

5- Anthraquinone-containing herbs is contraindication with people using cardiac glycosides.

IV-Mechanism of action of one of the following:

1-arbutin for Skin Lightening

2-cardiac glycosides

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	a- bruises and sprains b- as laxative c- heart attach

statements and re-write them in your answer sheet (9)

ried flower of *Eugenia caryophyllus*(Fam. Myrtaceae) indigenous to Yemen

ydrodistillationgive crocin which is responsible for odor and aroma of saffron

andular hair is found in clove

s used Topically as paste to treat acne.

dflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

ver is used used in toiletry and perfumery industry.

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1-Chose the correct answer (30)

1- Senegal is hydrolyzed by strong acid to yield:
a- oleanic acid
b- glycyrrhetic acid
c- β-hydroxybenzyl isothiocyanate

2- Which compounds are responsible for Hair pigment:
a- Alkaloids
b- Flavonoids
c- Essential oils

3- The most common terpenoids components of essential oils are
a- monoterpenoids
b- sesquiterpenoids
c- a and b

4- Isoflavones structure have
a- 3-phenylchromone
b- 2- phenylchromone
c- a and b

5- Cardenolides have
a- 6-membered lactone ring
b- 5-membered lactone ring
c- a and b

6- Strophanthin glycosides are
a- cardiotonic
b- Diuretic
c- a and b

7- Which of the following plants is used for urinary tract infections:
a- Juniper fruits
b- Digitalis
c- senna leaves

8- Phenylpropanoid components of cinnamon oil is:
a- Digitoxin
b- sennoside a
c- cinnamaldehyde

9- The essential oil chamomile is a light blue color due to:
a- chamazulene
b- linalool
c- a and b

10- digitoxin is used as
a- cardiotonic
b- laxative
c- anti-inflammatory

11- Flavonoid with ABOH under UV give:
a- Yellow color
b- Green color
c- Red color

12- Isoflavones structure have
a- 3- phenylchromone
b- 2- phenylchromone
c- a and b

13- Rotenone is used as:
a- antioxidants
b- pesticide
c- coloring agent

14- Gentian hydrolyzed to gentiose by:
a- maltase
b- β-glucosidase
c- intestinal bacteria

15- Isoflavonoids is contraindications in all these cases except:
a- non menopausal women
b- pregnant women
c- osteoporosis

16- Detoxification of cyanoglycosides in human is by:
a- glucosidase enzyme
b- Thiosulfate sulfur transferase
c- Amylase enzyme

17- Antidiuretics drugs could interact with
a- clove flower
b- arnica flower
c- cinnamon bark

18- Nutmeg oil is toxic in high dose due to:
a- Eugenol
b- Myristicin
c- Rutin

19- Aqeel ointment from parsley fruit is used for
a- cardiac arrhythmia
b- amenorrhea
c- laxative

20- Sodium picrate (yellow) is changing to red color indicated to the presence of:
a- HCN
b- Alkaloid
c- glycoside

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Name:

1- Caffeine gives a positive reaction with
a- Mayer's reagent
b- $FeCl_3$
c- Murexide reaction
d- Hoffe's test

2- Long use of Khat leading to :
a- Inhibition of blood pressure
b- Locomotor coordination
c- oral leprosy
d- epimedicine in liver

3- Pelletierine alk. is
a- Tropane alk
b- Pyridine alk
c- Tropolone alk.
d- Pyrrole alk

4- Pyrrolizidine is used as
a- insecticide
b- antiplatelet aggregation
c- anti-hypertensive
d- antiinflammatory

5- Ergotoxine is a mixture of
a- 3 alkaloids
b- 3 alkaloids
c- 4 alkaloids
d- 4 alkaloids

6- What plant does Lobeline come from? It is dried aerial part of Lobelia inflata

7- What are 2 proposed functions of Alkaloids within the plant Source of nitrogen

8- Name the following structure and its use:

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نماذج عشوائية

University of Sana'a — midterm exam (2Hr)

Faculty of pharmacy — 4th year phytochemistry

Name :

A- Chose the correct answer (14):

1-Cascara bark is used as
a- Antihypertention
b- Antispasmodic
c- Antibacterial
d- Purgative

2-Santonin is
a- Monoterpen
b- Sesquiterpen lacton
c- Alkaloids
d- Glycosides

3-Frangula bark is different from cascara in
a- Smaller in size
b- Contain scalereids
c- Has dark crimson inner cork
d- Used as a purgative

4-Oil gland of clove is
a- lysigenous
b- schizogenous
c- schizolysigenous

5-Buchu leaf is used locally to treat the following cases except:
a- spasmolytic
b- rheumatism
c- abscesses
d- neuralgia

6-Buchu leaves is indigenous to
a- Egypt
b- South Africa
c- Middle east

7-steam distillation is method for extraction of
a- volatile oil
b- Alkaloids
c- Glycosides
d- Tannins

8-Borntrager's test is used to identify
a- Anthraquinone glycosides
b- Anthracenone
c- Alkaloids
d- volatile oils

9-The blue color of chamomile oil is responsible for
a- Eugenol
b- Azulene
c- Volatile oil

10-Cascarosids A is
a- C-glycoside
b- O-glycoside
c- Both a & b

11-Boldo leaf oil is toxic because of the presence of
a- Boldine
b- Coumarin
c- ascaridol

12-Datura stramonium can be differentiated from other species by
a- margin of leaves
b- lateral veins of leaves
c- both a and b
d- apex of leaves

13-Leather is prepared by using
a- alkaloids
b- tannins
c- glycosides
d- resins

14-Mayer's test is used to identify
a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

SIDDIQ SALAH

B- Answer the following questions (10):

1-What plant (scientific name) can you find pelletierine ?

2-What is the toxic effects of cinchona bark?

3-What is the manufacture use of galls?

4-How to identify the adulteration of clove powder and buds?

5-Explain why the pyrethrum is better than synthetic insecticides?

SIDDIQ SALAH

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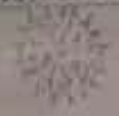
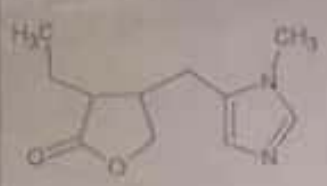
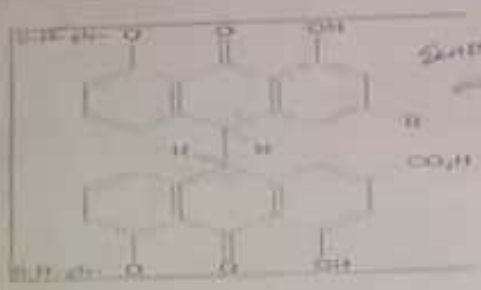
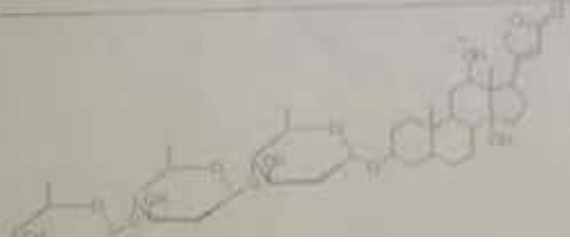
2 x 16 = 32 pt

E- Name and in which plant (scientific name) you find the following elements (12)

Name element	the inner cuticle of the anther	epidermal cell with wavy cell wall and cuticle with striations	uni cellular mucilaginous hairs with pits and
Name of plant	nerium oleander	Aloe vera barbadensis	(Cassia senna - Cassia angustifolia)
			
Name element	spherical pollen with spines	sclereids	carpenter fastening is bifurcating at one to many canal
Name of plant	chrysanthemum	Cinnamomum zeylanicum bark	Ipomoea angustifolia fruit

F- Name compounds, from which plant (common name) can be found and their uses (10)

Name compounds	Name plant	uses
 pilocarpin	Jaborandi (Maranham	glaucoma to contraction of the pupil for eye ward surgery
 sennosid	Senna	laxative
	digoxin digitalis	- congestive heart failure - arrhythmia

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B- Find 6 incorrect statements (write T or F) and re-write them in your answer sheet (10)

(T) Lysergic acid dimethylamide (LSD) is not naturally occurring in ergot and produces a transient psychosis

(F) cathinone is mostly found in maturation of the leaves

(T) the pungency of capsaicin can be destroyed by alkali

(T) Bisulphates of cinchona alkaloids are soluble in water while Quinine sulphate is sparingly soluble in water.

(T) ergotamine is levorotatory obtained from isolysergic acid

(F) Cinchonidine Tartrates are insoluble in H_2O, whereas the Quinidine tartrates are soluble in H_2O.

(F) Psychotrine on reduction give emetine which on methylation give cephaline

(T) Theophylline is separated from theobromine by treating with benzene (only theophylline dissolves).

(F) Tubocurarine is used to reduce convulsion of strychnine poisoning and of tetanus

(T) Nicotine, nor-nicotine and anabasine are nonvolatile liquids alkaloid obtained from tobacco

C-Answer the following questions (20):

1- What is the general methods for separation of alkaloids, mention them and discuses one of them (as scheme)?

2- Define Crack cocaine

3- How to separate a mixture of strychnine and brucine?

4- Differentiate between ephedrine and adrenalin?

5- Mechanism of action (choose one):

- Quinine as antimalarial agent
- Taxol as cytotoxic

6-Specific test for opium alkaloids?

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اسئلة المحاضرة الثانية

1-What is the major of the of the essential oil of clove and how to identify ?

the compound is eugenol . identified by KOH → crystal of K. eugenate.

2- how to know whether the flowers bud of clove is adulterated or not?

If the flowers bud of clove sink in hot water , means it is not adulterated because the oil of clove is heavier than water.

3- what are the toxic effect of using undiluted clove oil?

4- what is the major use the flower of pyrethrum and what is the major compound which responsible to this activity?

Pyrethrum is used as insecticide. The major compound is Pyrethrin

5-how to extract essential oil?

By Clevenger apparatus

6-what is the use of Santonica and what is the major compound responsible for that activity?

Antiinthementic , the compound is santonin.

7-what is the flower that used in bruises and sprains ?

Arnica

8- what is opium and what are the active compounds?

Opium is the dried latex obtained by incising the unripe capsule of *Papaver somniferum*,

1-Strong bases ; morphine, codeine and thebain.

2- weak bases ; papaverine, noscapine and narceine

9-What are uses of each opium alkaloid?

- Morphine has a depressant action on the C.N.S. (narcotic and analgesic effect)
- Codeine is used as a cough suppressant.
- Papaverine, is smooth muscles relaxant

10- what are the active compound of Ammi visnaga and its uses?

- Khellin (bitter principle)
- Visnagin, khellol glycosides.
- Traditionally it is used as antispasmodic for bronchi, GIT and bilary tract.
- It is used to remove small bladder and kidney stones by relaxing the muscles of the ureter
- Khellin (as injections and tables) used as coronary vasodilator. It is used in the treatment of angina pectoris and bronchial asthma.

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Date:

Name:

1. Labelled is
a. Oxygen ab.
b. Hypoxia ab.
c. Pyrexia ab.
d. Cyanosis ab.
e. Galactosemia ab.

2. Pyrogenics is used
a. as antipyrexia
b. in glaucoma
c. as hypertension
d. addition of oxygen

3. Sailor's vomit is used to diagnose
a. Morphine
b. Cocktail
c. Hyperchloremia
d. Gravy ab.

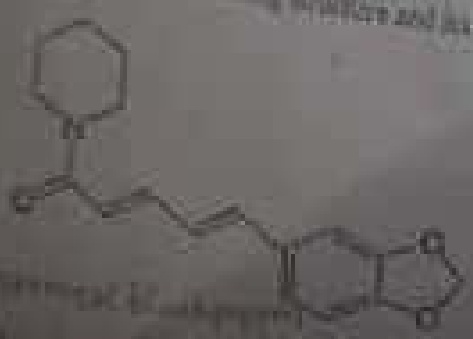
4. Choose the correct statement
a. Oxidase and Catalase are laboratory, catalase and oxidase are laboratory
b. Catalase and Oxidase are laboratory, oxidase and catalase are demonstratory
c. Oxidase and catalase are laboratory, Catalase and oxidase are demonstratory
d. Catalase and oxidase are demonstratory, Oxidase and catalase are laboratory

5. Which one is wrong for oxidase?
a. High pH
b. Cause blood to go bubble
c. Has long class of action
d. Plant origin

6. How do you identify Aconite alkaloids is a drug? TLC & HPLC

7. What plant does morphine come from?

8. Name the following structure and its use:



a. Crude from opium
b. From the base obtained by reacting from the weight of papaver somniferum from Afghanistan

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Uses:

Dracaena resin as a coloring matter for varnishes, tinctures, toothpastes, plaster, and for dying horn.

In Yemeni folk medicine: It is used for treating dysentery, diarrhoea, hemorrhage and external ulcers

pharmacological action

Antimicrobial and antiviral activity.

Antitumor and cytotoxic activity. Steroidal saponins. Draconin A and Draconin B

Analgesic activity. lourcirin B

Antioxidative activity.

IV) Balsamic resins

Balsams and balsamic resins are resinous pathological secretions (injury of the trunks is necessary) containing high proportions of aromatic balsamic acids (benzoic and cinnamic acids).

The most important representatives are : Tolu Balsam, Peru Balsam, Sumatra Benzoin and Siam Benzoin.

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Pharmacognosy

Root and rhizomes

Dr. Bushra Moharram

3rd year pharmacy

Lecture 8

Ginger

Name zanjabeel, ginger

B.O ginger is the rhizome of *Zingiber officinale*, fam. Zingiberaceae, which carefully peeled and dried in the sun, so known in commerce as "unbleach Jamica ginger"

G.S grown in many parts of the world, including Jamica, India, Africa.

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	Tolu Balsam	Peru Balsam
[illegible]	A balsam obtained by incision from the trunk of Myroxylon balsamum, Leguminosae.	A balsam obtained from the trunk of M. pereirae after it has been beaten and charred.
[illegible]	Colombia, Venezuela and Peru.	San Salvador, Honduras and Guatemala. The drug is named "Peru balsam" as it was first imported from Peru into Spain.
[illegible]	Brown brittle solid, having aromatic and fragrant odour.	Viscid (sticky) dark brown or nearly black liquid having vanilla-like odour and an acrid, slight bitter taste.

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C-Fill the blanks from the list bellow (write the number the appropriate letter) (15)

Herbs and fruits are known as -1- drugs while ager and aniseed are known as -2- drugs. Cassia senna indigenous in -3- and cultivated in -4-./ Senna leaves can cause K deficiency therefore it may affect us -5-./ Plants growing in their native countries, is -6- to those regions while plants out of native origin are called -7- plants. The shape of -8- leaves are ensiole and linear lanceolate while -9- leaves are ovate-lanceolate with decurrent base./ the suitable time for Digitalis leaves collection is in the -10-./ Deficience of : -11- produces chlorosis, -12- reduction of plant size and -13- reduction of carbohydrate synthesis./ -14- is the addition of a drug to another materials accidentally while -15- is the addition of an inferior material to any crud drugs with intent to defraud.

a- Admixture	s- Substitution	i- Digitalis purpurea	m- magnesium	c- cinnamon
b- heart function	f- K	l- Senna	e- aloe-gelatin	r- P
c- afternoon	g- Tropical Africa	k- Sophistication	s- Sulfur	o- indigenous
d- N_2	h- exotic	t- Digitalis lanata	p- morning	t- adulteration

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
q	n	g	f	b	s	h	L	t	c	m	r	p	o	k

D-Find 8 incorrect statements and re-write them in your answer sheet (10)

1-(X) crud drug is the products from ~~synthetic chemical~~ component found in raw form Crud drug is the products from natural source

2-(X) among the disadvantages of collection of drugs from ~~cultivated~~ plants is difficult to reach the plant.

3-(✓) underlain, multicellular, collapsed cells and mainly aerated covering products is characteristics of digitalis.

4-(✓) The amount and waterlosses the nature of the active compounds of plants effect by seasons.

5-(✓) Leaves, flowers and fruits should be collected when covered with dew or rain.

6-(✓) dragon's blood and colophony are consider as a resin.

7-(X) ~~glycosides~~ Tannin are complex organic, non-nitrogenous plant products, and have astringent properties

8-(X) isoenzyme A is different from papain glycosides A in the presence of ~~water~~ HCl

9-(X) ~~glycosides~~ Vitamin is responsible for the vision of plant.

10-(X) ~~medicinal~~ crude drugs is found and described in Pharmacopoeia.

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Name of pupil :

Faculty of Pharmacy

Date :

A-Choose the correct answer : (10)

1- Salicylic acid is :
a- Tricyclic
b- Dicyclic
c- Monocyclic

2- Ferric chloride is used to identify :
a- Phenolic OH
b- Alcoholic OH
c- Both of them

3- Aspirin is a :
a- Aromatic OH
b- Aromatic ester
c- Carboxylic acid

4- All these compounds are found in Coca except :
a- Benzoyl ecgonine
b- Cocaine
c- Atropine

5- Aspirin with FeCl3 resulted red color because of the presence :
a- Acetyl group
b- Salicylic
c- Phenolic

6- Aspirin is treated with :
a- Carbonic
b- Hydrochloric
c- Sulphuric

7- The antibacterial activity of Boric acid against Staphylococcus aureus is due to :
a- Bacteriae
b- Ionization
c- Essential oil

8- Aspirin powder is :
a- Amorphous
b- Polycrystalline
c- Cubic

9- Chamazulene is the major component of :
a- Chamomile
b- Valerian
c- Peppermint

10- Aspirin is a :
a- Aromatic OH
b- Basic OH
c- Tropan OH

B- Answer the following questions ? (10)

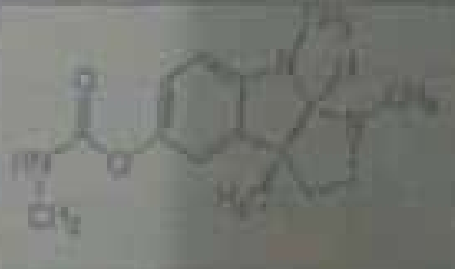
1- How to identify a sample of Atropine sulphate from a mixture of cocaine ?

2- What is tetrazonium ?

3- How to identify the chemical components of an essential oil ?

4- Differentiate between volatile and fixed oils ?

C- Above compounds, from which plant (common name) can be found and their uses ? (5)

Name compounds	Plant name	Uses
		

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1. Aggregate fruit formed from a single flower with many ovaries is a. blackberries
2. Alcoholic extract of the Ammi visnaga also has hypotensive effect
3. Answer the following questions (3X5):
i. What is the active compounds and uses of the following plants:

Feverfew	Chemical origin	compounds	uses
Ammi visnaga			
Vinca			
Dragons' blood			

ii. What are the advantages of pyrethrum as insecticide over the synth
ecticides?

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- saffron is considered one of the world's most expensive spices

E- Complete the table (13):

plant	Botanical name	Active compounds	uses
Santonica(wormseed)			
linseed			
Clove			
Fenugreek			

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C-Fill the blanks from the list bellow (write the number -the appropriate letter) (20)

Glycyrrhiza glabra var. *typica* is found in -1- while *G. glabra* var. β- *violacea* is from -2-./ Twisted covering trichomes is found in -3-./The fresh Saffron contains -4- which upon drying undergoes decomposition to -5- which on steam distillation gives -6- which is responsible for odor./ *Carapichea ipecacuanha* Known as -7- and cultivated in -8- but *Cephaelis acuminata* , known as -9- and exported from -10- /Clove of 11- varieties (A) are reddish-brown in color and are the larger than -12- variety./ Strychnine is used as a -13-./ Reserpine is used in -14- while ajmaline is used for -15-./Shaggy hair is found in -16-./The active members of ergot alkaloids are derivatives of -17- e.g -18-./ Socotrine aloes from -19- species while Cape aloes from -20-.

a- hypertensive	f- Cartagena	k-Zanzibar	p- Brazil	u- ergometrinine
b- lysergic acid	g- rodenticide	l- Rio	q- *Aloe frox*	v-purgative
c- safranal	h- Cardiac arrhythmias	m- Protocrocin	r- Colombia	w-cinnamon
d- Spanish	i- *Arnica*	n-cumin	s- isolysergic a.	x- anise
e- Penang	j- Iran	o-ergometrine	t- picrocrocin	y- *Aloe perryi*

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

D-Find 6 incorrect statements and re-write them in your answer sheet (20)

( ) *Rauvolfia serpentine* rhizome is different from *R. vomitoria* by the presence of Sclereids and has wider vessel.

( ) *Annulation* in Rio root is very crowded and more projecting than Cartagena root

( ) Cannabis consist of the dried flowering and fruiting tops of male plants of *Cannabis sativa* and cultivated in Europe.

( ) Clove is the dried flowering bud of *Eugenia caryophyllus* contains not less than 15% v/w of volatile oil

( ) The flower heads of Santonica should be collected before expanding during July and August to yield 3% of the active compound, chromosantonin.

( ) Addition of chloralhydrate to the powder of nutmeg showed fat crystals as result of the presence of tannins.

( ) The clove is in good quality when floats in water which is boiled then cold.

( ) The flowers of pyrethrum are not toxic to insects unless it is dried.

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Name: _____

1- Cleaving the glycosidic bonds (OR)
- a- Sugar is hydrolyzed to aglycone and phosphoric acid
- b- Sugar acid
- c- Alkaloid (Amine)
- d- a hydrolyzed carbohydrate

2- Which compounds are responsible for plant pigment:
- a- Alkaloids
- b- Flavonoids
- c- Essential oils

3- The most common terpenoids components of essential oils are
- a- monoterpenoids
- b- sesquiterpenoids
- c- a and b

4- Isoflavones structure have
- a- 3-phenylchroman
- b- 2- phenylchromen
- c- a and b

5- Cardenolides have
- a- 6-membered lactone ring
- b- 5-membered lactone ring
- c- a and b

6- Strophanthus glycosides are
- a- cardenolides
- b- Isoflavenoides
- c- a and b

7- Which of the following plants is used for urinary tract infections:
- a- Juniper fruits
- b- Digitalis
- c- senna leaves

8- Phenylpropanoid components of cinnamon oil is:
- a- Digitoxin
- b- sennoside a
- c- cinnamaldehyde

9- The essential oil chamomile is a light blue color due to:
- a- chamazulene
- b- bisabolol
- c- a and b

10- digitoxin is used as
- a- cardiotonic
- b- laxative
- a- anti-inflammatory

11- Flavonoid with AlCl3 under UV give:
- a- Yellow color
- b- Green color
- c- Red color

12- Isoflavones structure have
- a- 3-phenylchroman
- b- 2- phenylchromen
- c- a and b

12- Rotenone is used as:
- a- antioxidants
- b- pesticide
- c- coloring agent

14-Genistin hydrolysed to genistein by
- a- malin
- b- β-glucosidase
- c- intestinal bacteria

15- Isoflavonids is contraindication in all these cases except:
- a- non menopausal women
- b- pregnant women
- c- osteoporoses

16-Detoxification of cyanoglycosides in human is by:
- a- glucosidase enzyme
- b- Thiosulfate sulfur transferase
- c- Amylase enzyme

17- Antidiabetes drugs could interact with
- a- clove flower
- b- arnica flower
- c- cinnamon bark

18-Nutmeg oil is toxic in high dose due to:
- a- Eugenol
- b- Myristicin
- c- Rutin

19- Apiol obtained from parsley fruit is used for
- a- cardiac arrhythmia
- b- amenorrhea
- c- laxative

20- Sodium picrate (yellow) is changing to red color indicated to the presence of:
- a- HCN
- b- Alkaloid
- c- glycosids

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جارٍ حفظ لقطة الشاشة...

( ) Glyceryl esters as the components of volatile oil while hydrocarbons are the active components of fixed oil.

( ) Universal enzyme is the enzyme that can hydrolyse more than one glycosides while specific enzyme hydrolyse only a single glycoside.

( ) Camphor is a bicyclic terpene ketone, obtained from the wood and bark of the camphor tree by steam distillation.

( ) UV spectra of flavonoids in MeOH show two absorption bands I and II. Band I is due to the benzoyl system.

( ) Constituents of volatile oils belong to 2 main groups: aromatic (derived from acetate) and the terpenoids compounds (phenylpropanoids).

( ) Glycosides contain sugar therefore it can reduce fehling's solution.

( ) Coniferin, obtained from pine tree, is hydrolyzed by enzyme into coniferin alcohol follows by oxidation yielding vanillin, a flavouring agent

( ) Glycosides of anthrones have a more drastic action than the corresponding anthraquinone glycosides.

( ) The acetal linkage between the individual sugars of the sugar chain part is easier cleaved than the linkage between aglycone and sugar.

( ) Increases the number of sugar units in cardiac glycosides led to increase the potency.

C- Answer the following quissions (30):

I-What are the suitable methods for the extraction of citrus fruits?

II-Define:

-Pomade

-Cyanogenic glycosides

III-Give reasons for

1- Pregnant women shouldn't used Fennel oil.

2- Cardamom should not be used in high dose with people have gallstones.

3- People with bleeding disorders should take care when use Clove oil

4- Cinnamon bark should be avoided in pregnancy.

5- Anthraquinone-containing herbs is contraindication with people using cardiac glycosides.

IV-Mechanism of action of one of the following:

1-arbutin for Skin Lightening

2-cardiac glycosides

Khalid AL Droubi
الثلاثاء في ١٠:٣٧ م

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نماذج عفافية

University of Sana'a — midterm exam (2Hr)

Faculty of pharmacy — 4th year phytochemistry

Name :

A- Chose the correct answer (14):

1-Cascara bark is used as
a- Antihypertention
b- Antispasmodic
c- Antibacterial
d- Purgative

2-Santonin is
a- Monoterpen
b- Sesquiterpen lacton
c- Alkaloids
d- Glycosides

3-Frangula bark is different from cascara in
a- Smaller in size
b- Contain sclereids
c- Has dark crimson inner cork
d- Used as a purgative

4-Oil gland of clove is
a- lysigenous
b- schizogenous
c- schizolysigenous

5-Senna leaf is used locally to treat the following cases except:
a- spasmolytic
b- rheumatism
c- abscesses
d- neuralgia

6-Buchu leaves is indigenous to
a- Egypt
b- South Africa
c- Middle east

7-steam distillation is method for extraction of
a- volatile oil
b- Alkaloids
c- Glycosides
d- Tannins

8-Borntrager's test is used to identify
a- Anthraquinone glycosides
b- Anthraquinone
c- Alkaloide
d- volatile oils

9-The blue color of chamomile oil is responsible for
a- Eugenol
b- Azulene
c- Volatile oil

10-Cascaroside A is
a- C-glycoside
b- O-glycoside
c- Both a & b

11-Boldo leaf oil is toxic because of the presence of
a- Baldine
b- Coumarin
c- ascaridol

12-Senna alexandrina can be differentiated from other species by
a- margin of leaves
b- lateral veins of leaves
c- both a and b
d- apex of leaves

13-Leather is prepared by using
a- alkaloids
b- tannins
c- glycosides
d- resins

14-Mayer's test is used to identify
a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

SIDDIQ SALAH

B- Answer the following questions (10):

1-What plant (scientific name) can you find pelletierine ?

2-What is the toxic effects of cinchona bark?

3-What is the manufacture use of gaiis?

4-How to identify the adulteration of clove powder and buds?

5-Explain why the pyrethrum is better than synthetic insecticides?

SIDDIQ SALAH

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B-Answer the following questions (1*)

1-What is the mechanism of action of

a- colchicines in gout?

b- quinine on schizont?

c- vincristine and vinblastine

d- Rauwolfia in hypertension

2-1-What is the suitable extraction method for :

- the citrus oil
- Perfumes

2-Define aromatherapy and argotism?

3-What is the functional group that can effect in the analgesic activity of morphine (SAR)?

4-What is Clevenger apparatus ?

5-Why the solubility of alkaloids and their salts should be considered?

6-How can you treat cocain poisoning ?

7-Name two Plants (common name) that used as suicidal or homicidal agent and their toxic compounds?

8-How can you decrease the toxicity of Arsenic ?

C- Fill the following blank with suitable words (*)

Theobromine is an _____ alkaloids found in (Scientific name) _____ and used in _____

Chemotaxis is _____

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[4]

[1D] Fill the blank from the list follow (just weight the number appropriate)

Crack Cocaine is administered by [1] / Quinine is the active component of [2] and used to treat [3] / Iodic test [4] is used to identify [4] / [5] is the latex obtained by incision of capsule of poppy Somniferum / physostigmine is oxidized into [6] Therefore it should be protected from air. / Taxol is The active component of [7] and used as [8] / Arnica is used locally as tincture for [9] and [10] / Cephaline on methylation become [11] which is used as [12] / Morphine is an [13] alk. and used for [14]

[A] Yew
[B] plantago
[C] Smoking
[D] cinchona
[E] Arrhythmia
[F] Theobromine
[G] Opium
[H] Injection
[I] Malaria
[J] Chamomile
[K] Morphine
[L] Rubiaceae
[M] Emetine
[N] Immune deficiency
[O] Bruises
[P] amoebic dysentery
[Q] Isoquinoline
[R] Anti-Cancer
[S] Sprains

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Unit C Name:

1- Colchicines is used to
a- relieve any type of pain
b- treat gout
c- inhibit blood pressure
d- treat arrhythmia

2- Menispermaceous tube alk-curare contain;
a- tubocurarine
b- c-calebassine
c- curine
d- c-toxiferine

3- Bisindol alkaloids are composed of
a- Indol and dihydroindole units
b- Vindoline and cantharanthine
c- Indol unit and Vindoline
d- Cantharanthine and indole units

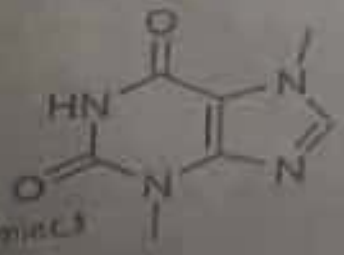
4- Mandelin's reagent give violet color with;
a- Brucine
b- Strychnine
c- Caffeine
d- Morphine

5- Noscapine has ;
a- sedative effect
b- antispasmodic effect
c- antitussive action

6- Mention 3 general pharmacological activities of alkaloids? (with examples of alkaloids)

7- What plant contain papaverine? by incision from the unripe capsules of papaver somniferum

8- Name the following structure and its use



theobromine

It has diuretic effect & used in edema.

6- pharmacological activities ?
1- as CNS depressant (morphine, Scopolamine) or CNS stimulant (Strychnine, Caffeine)
2- Have Sympathomimetics (ephedrine) or Sympatholytic (Yohimbine), parasympathomimetic (Pilocarpine) or anticholinergic (Atropine).
3- Have local anesthetic (Cocaine)
4- anti cancer (Vinblastine)
5- antibacterial (Berberine) & antiviral (Cinnamon activities)

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B. Choose the correct answer (10)

1. Sporogenous tissue is used to produce a. chlorophyll b. volatile oil c. gametes	6. If sterile tissue is cross shaped, it is arrangement with a. Bulk b. Seed c. Seed a and b
2. If adapted morphological leaf is found as a. green flower b. green fruit c. Functional flower	7. Female reproductive part is a. Stamen b. androgynous cluster c. ovule
3. Meristem tissues is used to identify a. respiration b. Seeding c. both a and b	8. The color of chromosome are due to a. Chromosome b. Bisphenol c. Eugenol
4. Clove powder with KOH give insoluble cement due to the presence of a. S. aromaticum b. I_2 tannin c. Both a and b	9. E. tannin protein is found in a. Clove b. Nutmeg seed c. peppermint
5. chamomile is used essential for a. bowel sickness b. paper clove c. hypertension	10. Arnica is used a. Bruises and sprains b. as laxative c. heart attack

C. Find 6 incorrect statements and re-write them in your answer sheet (9)

1. Cloves are the dried flower of Eugenia caryophyllata (syn. Myrtaceae) indigenous to Yemen
2. gymnosperm or hydrodistillation engine, cause which is responsible for color and aroma of saffron
3. Arnica leaf is produce base as found in china
4. a saffron flower is used Typically as pain or true aster
5. saffron is dried flower of Crocus sativus. Cultivated it is native to Iran and Greece
6. medicinal herb is used used in culinary and pharmacy industry

ss,	a- bruises and sprains b- as laxative c- heart attach

statements and re-write them in your answer sheet (9)

ried flower of *Eugenia caryophyllus*(Fam. Myrtaceae) indigenous to Yemen

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edflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

wer is used used in toiletry and perfumery industry.

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Name:

Quiz 1

1. Ephedrine
a. Tropic alk
b. Piperidine alk.
c. Pyridine alk
d. Quinoline alk

2. Hyoscyamine is used
a. as antispasmodic
b. in glaucoma
c. anticyclonics
d. mydriatic of atropine

3. Mayer's test is used to identified
a. Morphine
b. Colchicines
c. Digoxin glycosides
d. Gallic alk

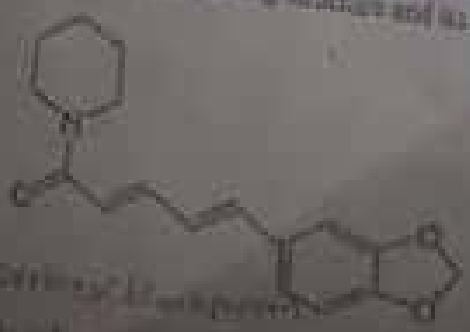
4. Choose the correct statement
a. Quinine and Quinidine are diastereomers, ephedrine and pseudoephedrine are levorotatory
b. Quinine and Quinidine are levorotatory, cocaine and theobromine are dextrorotatory
c. Quinine and theobromine are levorotatory, Quinidine and cocaine are dextrorotatory
d. Quinine and cocaine are dextrorotatory, Quinidine and ephedrine are levorotatory

5. Which one is wrong for opium?
a. High pcog
b. Cross blood brain barrier
c. Has long time of action
d. Plant origin

6. How do you identify known alkaloids in a drug? TLC, HPLC

7. What plant does morphine come from?

8. Name the following structure and its use:



Capsule from opium
It is the latex obtained by incision from the unripe capsules of Papaver somniferum from Papaveraceae

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	Botanical	A.S	Use
1. Clove			
2. Santonica			
3. Linseed			
4. Fenugreek			
5. ———			

6- Three Types of pollen grain with Name of The plants

7- Nux Vomica

8- Purgative used as Superior To Insecticide

9- Saffron is Considered one of most expensive spices ??

10- ———

10- high quality of clove sinks when placed in water

D- answer the following questions (4);

1- differentiate between Penang and Zanzibar varieties of clove.
2- What are the type of ovules

E- Give a reason for (8)

- Pyrethrum is better than synthetic insectjcides e.gDDT .
- Cardamomseed should be recently separated
- large doses (15g) of nutmeg are toxic and producing convulsions and hallucination.
- saffron is considered one of the world's most expensive spices

E- Complete the table (13);

plant	Botanical name	Active compounds	uses
Santonica(wormseed)			
linseed			

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e- Penang	j- Iran	o- ergometrine	t- picrocrocin	y- *Aloe perryi*

محمد الفقيه

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

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University of Sana'a
Faculty of pharmacy

Final exam (2nd)
3rd year Pharmacognosy (2015)

I- Dissection (10):
1- T.S of Linseed or *Ammi visnaga*
2- microscopical character of nux-vomica

II-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
c. *lobelia inflata*

5- Which compound is responsible for the sweet taste of liquorice rhizome:
a- Glycyrrhizin
b- chalcone
c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

8-The seed of nux vomica is
a- exalbuminaus
b- albuminaus
c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

10- The powder of nutmeg seed contain:
a- Prism of CaOx
b- Cluster of Caox
c- Prism of K-tartara

11- Tragacanthin is the component of
a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmaline
c- Gitroxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- both a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

16- the flower of *Artemisia cina* is used as:
a- antiinflamation
b- Antianthelmintic
c- cardiotonic

17- the seeds of cardamom should be separated recently to
a- avoid the loss of volatile oil
b- differentiate between different varieties
c- both a and b

18- Ergotamine is used for
a- migraine
b- labour
c- mental disorders

19- strychnine give a + ve test with:
a- Mandelin's reagent
b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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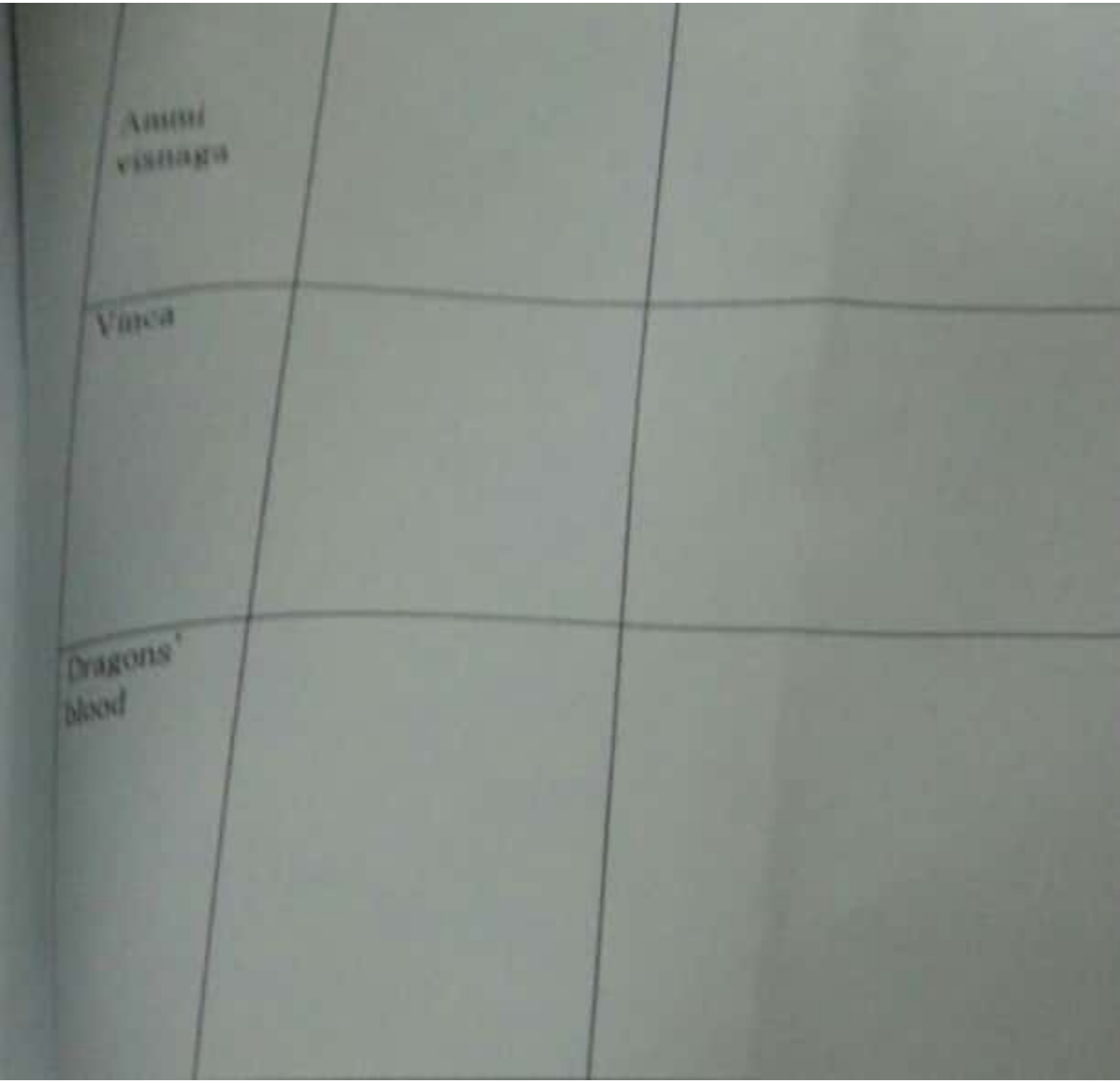

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A-Diagramatize (10):

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2- microscopical character of nux-vo

B-Chose the correct answer (20)

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C-Fill the blanks from the list bellow (write the number the appropriate letter)

(20)

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e- Penang	j- Iran	o-ergometrine	t- picrocrocin	y-*Aloe perryi*

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

D-Find 6 incorrect statements and re-write them in your answer sheet (20)

( ) *Rauvolfia serpentine* rhizome is different from *R. vomitoria* by the presence of Sclereids and has wider vessel.

( ) *Annulation* in Rio root is very crowded and more projecting than Cartagena root

( ) Cannabis consist of the dried flowering and fruiting tops of male plants of *Cannabis sativa* and cultivated in Europe.

( ) Clove is the dried flowering bud of *Eugenia caryophyllus* contains not less than 15% v/w of volatile oil

( ) The flower heads of Santonica should be collected before expanding during July and August to yield 3% of the active compound, chromosantonin.

( ) Addition of chloralhydrate to the powder of nutmeg showed fat crystals as result of the presence of tannins.

( ) The clove is in good quality when floats in water which is boiled then cold.

( ) The flowers of pyrethrum are not toxic to insects unless it is dried.

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1- Caffeine give positive reaction with
a- Mayer's reagent
b- $FeCl_3$
c- Murexide reation
d- Helch's test

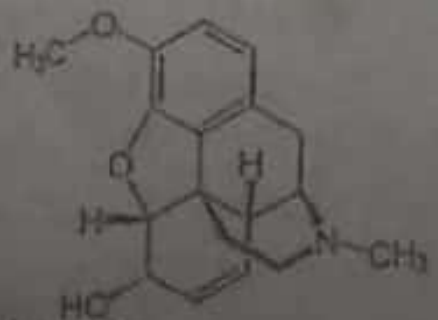
2- Long use of Khat resulting in ;
a- Inhibition of blood pressure
b- Locomotor sensitisation
c- oral keratotic
d- cytotoxicity in liver

3- Pelletierine alk is
a- Tropene alk
b- Pyridine alk
c- Tropolone alk
d- Pyrrole alk

4- Piperine is used as
a- insecticide
b- antiplatelet aggregation
c- anti-hypertension
d- antiinflamatory

5- Ergotoxine is a mixture of
a- 2 alkaloids
b- 3 alkaloids
c- 4 alkaloids
d- 6 alkaloids

6- What plant does Lobeline come from? It is dried aerial part of Lobelia infl
7- What are 2 proposed functions of Alkaloids within the plant? Source of nitrogen -
8- Name the following structure and its uses;



(Codeine)
Moderate analgesic effect.
Antitussive: depress respiratory center, broncho-
dilation (on smooth muscle), & secretion
release histamine

B-Find 6 incorrect statement and write the correct once in your answer sheet (15):

( ) Glyceryl ester is the components of volatile oil while hydrocarbons are the active compounds of fixed oil.

( ) Universal enzyme is the enzyme that can hydrolyse more than one glycosides while specific enzyme hydrolyse only a single glycoside.

( ) Camphor is a bicyclic terpene ketone, obtained from the wood and bark of the camphor tree by steam distillation.

( ) UV spectra of flavonoids in MeOH show two absorption bands I and II. Band I is due to the benzoyl system.

( ) Constituents of volatile oils belong to 2 main groups; aromatic (derived from acetate) and the terpenoids compounds (phenylpropanoids).

( ) Glycosides contain sugar therefore it can reduce fehling's soltution.

( ) Coniferin, obtained from pine tree, is hydrolyzed by enzyme into coniferin alcohol follows by oxidation yielding vanillin, a flavouring agent

( ) Glycosides of anthrones have a more drastic action than the corresponding anthraquinone glycosides.

( ) The acetal linkage between the individual sugars of the sugar chain part is easier cleaved than the linkage between aglycone and sugar.

( ) increases the number of sugar units in cardiac glycosides led to increase the potency.

C- Answer the following quisions (30):

I-What are the suitable methods for the extraction of citrus fruits?

II-Define:

-Pomade

-Cyanogenic glycosides

III-Give reasons for

1- Pregnant women shouldn't used Fennel oil.

2- Cardamom should not be used in high dose with people have gallstones.

3- People with bleeding disorders should take care when use Clove oil

4- Cinnamon bark should be avoided in pregnancy.

5- Anthraquinone-containing herbs is contraindication with people using cardiac glycosides.

IV-Mechanism of action of one of the following:

1-arbutin for Skin Lightening

2-cardiac glycosides

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Name :_____

A- Chose the correct answer (14):

1-Cascara bark is used as
a- Antihypertention
b- Antispasmodic
c- Antibacterial
d- Purgative

2-Sennosin is
a- Monoterpen
b- Sesquiterpen lactone
c- Alkaloids
d- Glycosides

3-Frangula bark is different from cascara in
a- Smaller in size
b- Contain tannins
c- Has dark crimson inner cork
d- Used as a purgative

4-Oil gland of clove is
a- lysigenous
b- schizogenous
c- schizolysigenous

5-Picture structure test is used locally to treat the following cases except:
a- spasmolytic
b- rheumatism
c- abscesses
d- neuralgia

6-Buchu leaves is indigenous to
a- Egypt
b- South Africa
c- Middle east

7-steam distillation is method for extraction of
a- volatile oil
b- Alkaloids
c- Glycosides
d- Tannins

8-Borntrager's test is used to identify
a- Anthraquinone glycosides
b- Anthocyanin
c- Alkaloids
d- volatile oils

9-The blue color of chamomile oil is responsible for
a- Linalool
b- Azulene
c- Volatile oil

10-Cascarosids A is
a- C-glycoside
b- O-glycoside
c- Both a & b

11-Boldo leaf oil is toxic because of the presence of
a- Boldine
b- Coumarin
c- scarcidol

12-Senna alexandrina can be differentiated from other species by
a- margin of leaves
b- lateral veins of leaves
c- both a and b
d- apex of leaves

13-Leather is prepared by using
a- alkaloids
b- tannins
c- glycosides
d- resins

14-Mayer's test is used to identify
a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

B- Answer the following questions (10):

1-What plant (scientific name) can you find pellitorine?

2-What is the toxic effects of cinchona bark?

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University of Sana'a
Faculty of pharmacy

Final exam (2Hr)
3rd year Pharmacognosy (2019)

A-Give information (10):
1- T.S of fruit(seed of *Ammi visnaga*
2- microscopical character of nux vomica

B-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
c. *lobelia inflata*

5- Which compound is responsible for the sweet taste of liquorice rhizome;
a- Glycyrrhizin
b- chalcone
c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

8-The seed of nux vomica is
a- exalbuminaus
b- albuminaus
c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

10- The powder of nutmeg seed contain:
a- Prism of CaOx
b- Cluster of Caox
c- Prism of K-tartara

11- Tragacanthin is the component of
a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmalin
c- Gitroxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- both a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

16- the flower of *Artemisia cina* is used as:
a- antiinflamation
b- Antianthelmintic
c- cardiotonic

17- the seeds of cardamom should be separated recently to
a- avoid the loss of volatile oil
b- differentiate between different varieties
c- both a and b

18- Ergotamine is used for
a- migraine
b- labour
c- mental disorders

19- strychnine give a +ve test with:
a- Mandelin's reagent
b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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C- Fill the blanks from the list bellow (just write the number -the appropriate letter) (12)

Crud drugs which are sensitive to higher temperature are dried in -1- while -2- is suitable for highly sensitive to atmospheric condition. -3- is an impairment of the quality a crud drug by distillation while -4- is the addition of an inferior material to any crud drugs with intent to defraud. Alexandrian senna is known as -5- cultivated in -6-. The cardiac glycosides-7- and -8- are obtained from-9- leaves. *Hyoscyatnus niger* is cultivated in -10-. -11- are ester of a sugar and a phenolic compound e.g -12-.

A.Sophistication	D. Egypt	G. Europe	J. Condensed tannins	M. gallic	P. Hydrolysable tannins
B.*Cassia senna*	E. digitoxin	H. Spray drying	K.Deterioration	N. Sudan	Q. gitoxin
C.Alexandria	F. Oven drying	I. foxglove	L. *Cassia angustifolia*	O. Freez drying	R. digitoxigenin

1	2	3	4	5	6	7	8	9	10	11	12
B	E	A	D	B	G	F	J	E	O	R	L

D- Answer the following questions (16):

1-Define unorganized drugs? drug containing active effective in Body

2-What are the advantages of cultivation? a-less leaves 2-

3-Give the main active compounds and uses of 2 drugs:
Belladonna, senna, hyoscyamus, digitalis

4-What is the chemical test for the five member ring of digitalis?

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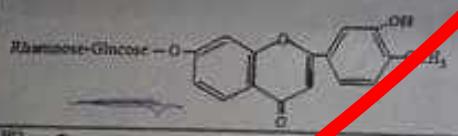
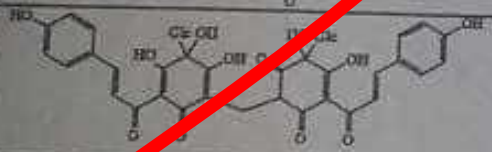
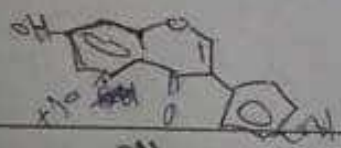
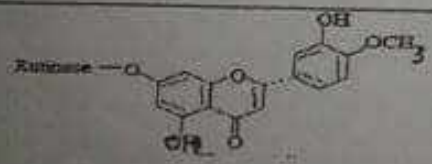
D-Fill the blanks from the list bellow (just write the number -the appropriate letter)(20)

Musk, an essential oil, obtained from ..1.. source while anis oil from ..2../ Plant material e.g ..3.. which is sensitive to direct boiling is distilled by ..4.. distillation while plants that are stable at high temperature e.g ..5.. are distilled by ..6.. distillation/ The naturally occurring form of camphor is ..7.. while the synthetic form is ..8../ In glycosides, ..9.. part helps in stabilization and solubilization of the molecule while ..10.. part is useful for the activity./ Sulphur-containing glycosides can be hydrolysed by ..11.. enzyme while ..12.. enzyme can hydrolyze α- glycosides./ Salicin is hydrolysed by emulsin to ..13.. and ..14.. while on acid hydrolysis yields ..15../ Isoflavone is known as a group of ..16../ Flavanone is used to minimise..17../ Scillaren-A, obtained from ..18.., hydrolysis with enzyme to..19.. while with acid yields ..20..

a- Turpentine Oil	g- Invertase	m- saligenin	s- D-glucose
b- β-type	h-glycone	n-red squill	t- capillary fragility
c- levorotatory	i- dextrorotatory	o-water and steam	u-proscillaridn-A
d- aglycone	j- saliretin	p- Myrosin	v-alkyl
e-animal	k- Cinnamon Oil	q- phytoestrogens	w- volatile oil
f-plant	l-white squill	r- Water	x-scillaridin-A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
e	f		o	k	y	l	c	s	d					
16	17	18	19	20										

E -Name compounds, from which plant (common name) can be found and their uses (15)

Name compounds and structure	Plant name	uses
		
		
Genistein 		
Umbelliferone		
		

Good luck
Dr. Bushra

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	a- bruises and sprains b- as laxative c- heart attach

statements and re-write them in your answer sheet (9)

ried flower of *Eugenia caryophyllus*(Fam. Myrtaceae) indigenous to Yemen

ydrodistillationgive crocin which is responsible for odor and aroma of saffron

andular hair is found in clove

s used Topically as paste to treat acne.

dflower of *Crocus sativus*L. (Iridaceae).It is native to Iran and Greece

ver is used used in toiletry and perfumery industry.

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C-Fill the blanks from the list bellow (write the number –the appropriate letter) (15)

Herbs and fruits are known as –1– drugs while agar and gelatine are known as –2– drugs. *Cassia senna* indigenous in –3– and cultivated in –4– / Senna leaves can cause K deficiency therefore it may effect on –5–./ Plants growing in their native countries, is –6– to these regions while plants not of native origin are called –7– plants. The shape of –8– leaves are sessile and linear lanceolate while –9– leaves are ovate–lanceolate with decurrent base./ the suitable time for Digitalis leaves collection is in the –10–. / Deficiency of : –11– produces chlorosis, –12–reduction of plant size and –13– reduction of carbohydrate synthesis./ –14– is the addition of a drug to another materials accidently while –15–is the addition of an inferior material to any crud drugs with intent to defraud.

a- Admixture	e- Substitution	i- *Digitalis purpurea*	m- imparipinnate	q- organized
b- heart function	f- K	j- Sudan	n- unorganized	r- P
c- afternoon	g- Tropical Africa	k- Sophistication	o- Bolivia	s- indigenous
d- N_2	h- exotic	l- *Digitalis lanata*	p- morning	t- malnutrition

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
q	N	g	J	r	s	h	L	I	c	d	r	s	a	E

D-Find 6 incorrect statements and re–write them in your answer sheet (10)

1-(X) crud drug is the products from synthesis chemical component found in a raw form

2-(X) among the disadvantages of collection of drugs from cultivated plants is difficult to reach the plant.

3-(✓) *uniseriate, multicellular, collapsed celled and bluntly pointed covering trichome is characteristics of digitalis .*

4-(✓) The amount and sometimes the nature of the active compounds of plants effect by season.

5-(X) Leaves, flowers and fruits should be collected when covered with dew or rain.

6-(✓) dragon's blood and colophony are consider as a resin.

7-(X) glycosides are complex organic, non-nitrogenous plant products, and have astringent properties

8-(X) uzarigenin A is different from pupura glycosides A in the presence of sugar

9-(✓) alkaloids is responsible for the odors of plant.

10-(X) crude drugs is listed and described in Pharmacopoeia.

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University of Sana'a

Faculty of pharmacy

midterm exam (2hr)

3rd year pharmacognosy 2018

A. Diagrammatize (10):

1- The key elements of Egyptian henbane that distinguish it from European henbane.

2- A T.S in the midrib of *Datura stramonium*.

B-Chose the correct answer (12)

1- Morphological of crud drug can be classify depend on:
- a- External characters of the plant parts.
- b- Alphabetical order
- c- Their pharmacological action

2- Botanical origin is the origin of a drug from
- a- plants
- b- animals
- c- both a & b

3- Deficiency of N_2 in soil can cause
- a- reduction of plant size
- b- reduction of carbohydrate synthesis
- c- chlorosis

4-Active element in soil is
- a- sodium
- b- calcium
- c- iron

5- Keller-killiani is test for
- a- glycosides
- b- digitoxose
- c- tannins

6-all the affects are true for gibberellins except:
- a- induce flowering at earlier stages
- b- Increase the length of the dwarf
- c- Inhibit the seed germination

7- Alkaloid is a
- a- sugar portion linked to a non-sugar moiety
- b- nitrogenous compound
- c- terpen compound

8- All are bifacial structure except:
- a- senna
- b- digitalis
- c- datura

9-senna is used in
- a- Intestinal obstruction
- b- Constipation
- c- appendicitis

10- *Digitalis purpurea* is contraindication in
- a- heart failure
- b- auricular fibrillation
- c- Cerebral haemorrhage

11-hairs containing calcium carbonate are found in:
- a- Datura stramonium
- b- *Xanthium strumarium*
- c- Both a & b

12-bluntly pointed, collapsed celled covering tirchome is found in:
- a- Digitalis
- b- Senna
- c- Datura

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( ) the disadvantages of collection drugs from cultivated plant, is difficult to reach the plant.

( ) the amount and the nature of the active compounds of plants effect by season .

( ) leaves, bark and seeds are known as unorganized drug while gums and gelatin are known as organized drug.

( ) dragon's blood and colophony are consider as resin

( ) alkaloids are complex organic, non-nitrogenous plant products and responsible for astringent properties of plants.

( ) plants growing in their native countries are called indigenous to these regions while plant that not native are called exotic.

( ) Deficiency of N2 caused produces chlorosis while deficiency of P reduces plant size.

( ) alkaloids are responsible for the odor and taste of the plants.

( ) unofficial crud drugs is listed and described in Pharmacopoeia

C-Answer the following questions (10);

- What are the advantages of plant cultivation?
- Give 3 pharmacological action of alkaloids
- Classify tannins and mention the uses of them.

D- Define the following words(5); Deterioration, glcosides, crud drugs,

E-Give a reasons (6);

- Barks are usually collected after raining
- Drying is important for crud drugs

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c) Liver & kidney

d) Liver & brain

20) The complete oxidation of glucose to CO_2 and H_2O produces

a) 12 ATP

c) 14 ATP

d) 38 or 36 ATP

21) The net ATP yielded from Palmitoyl coA ($C_{16:0}$) oxidation is:

a) 132 ATP

c) 129 ATP

d) 131 ATP

22) The net ATP produced from catabolism of Arachidic acid ($C_{20:0}$) in mass of mitochondria:

a) 163 ATP

b) 165 ATP

c) 159 ATP

d) 153 ATP

23) The ATP needed to synthesize of Palmitic acid ($C_{16:0}$) is

a) 112 ATP

b) 145 ATP

c) 139 ATP

d) 141 ATP

24) Excessive production of ketones in the urine may be seen in:

a) Controlled diabetes patients

b) Excessive lipid metabolism

c) Starvation

d) None of the above

25) Which of the followings is required as carrier to transport fatty acids from cytosol to mitochondria

a) Carnetine

b) Citrate

c) Aspartate Malate shuttle

d) All of the above

26) Which of the followings is required as carrier to transport acetyl CoA from mitochondria

a) Carnetine

b) Citrate

c) Aspartate Malate shuttle

d) All of the above

27) Keton bodies can be used as a source of energy for the all the following except:

a) Extra-hepatic tissues

b) Skeletal muscles

c) Liver

d) Kidney

28) The key regulatory enzyme of fatty acid synthesis is:

a) Acyl co A synthetase

b) Keto acyl synthase

c) Acetyl co A carboxylase

d) Thioesterase

29) Ammonia can be transported from peripheral tissues to the liver in the form of

a) Free ammonia bound to albumin

b) Glutamine

c) Arginine

d) b & c

30) Which of the following amino acids is/are formed by direct transamination of

a) alanine

b) aspartate

c) glutamate

d) all of the above

31) The most source of *oxalate* that is a result of Ca^{2+}-oxalate stones in Kidney

a) Alanine

b) Glycine

c) Vitamin C

d) None of the above

32) The amino acid that causes Kidney stones is:

a) Cysteine

b) Lysine

c) Tyrosine

d) A and B

33) Albinism is inborn defect due to complete or partial absence of tyrosine that lead

a) Melanin synthesis

b) Serotonin synthesis

c) Melatonin synthesis

d) A and B

34) The following is a product of Purine base metabolism:

a) Beta-Alanine

b) Beta-amino isobuytrate

c) Uric acid

d) NH_3 and CO_2

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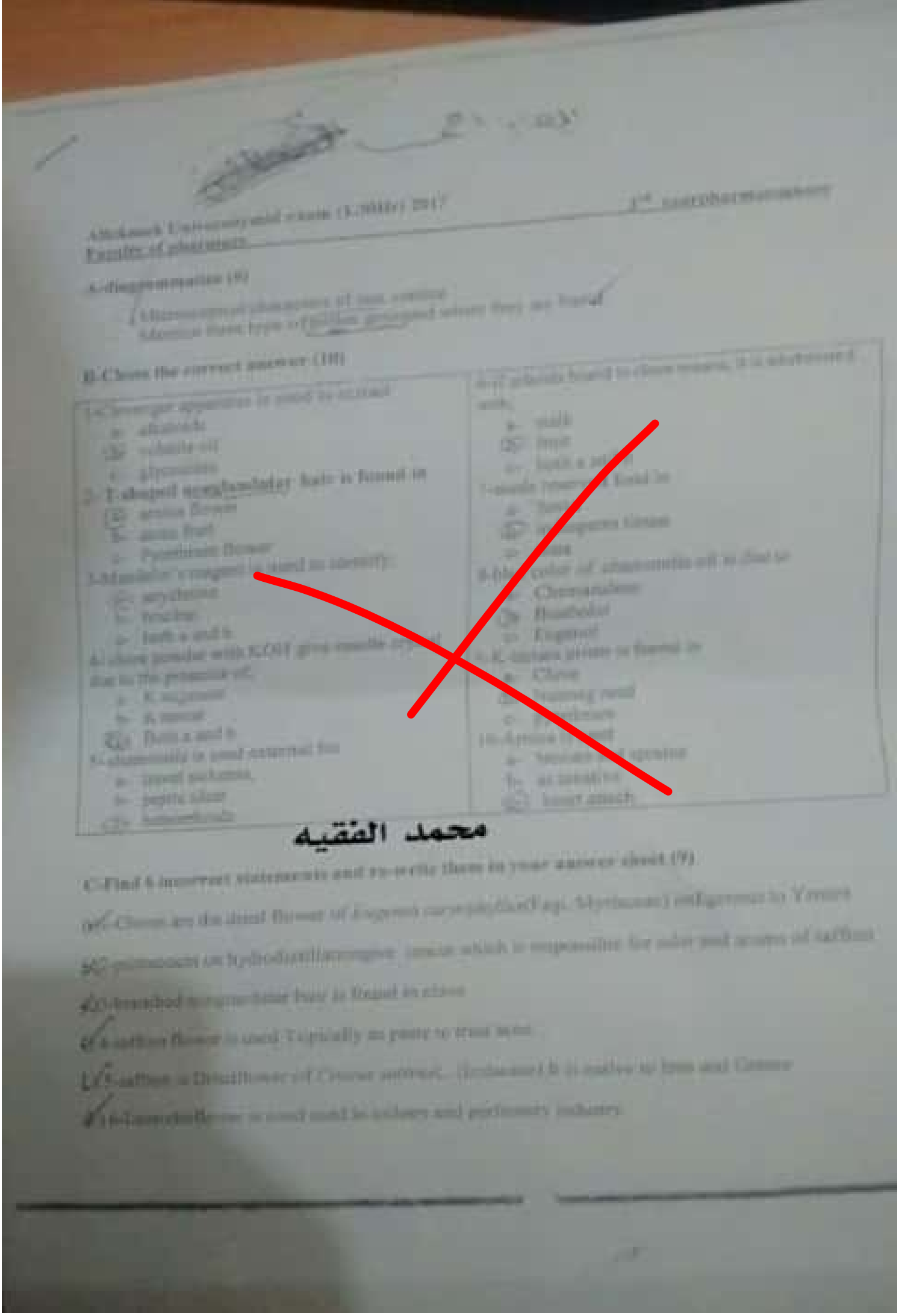

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Quiz D

name;

5

1- Sennoside A is

a- C-glycosides
b- O-glycosides
c- Both a and b
d- S-glycosides

2- Keller-kiliani test is used to detect

a- Alkaloids
b- Tannins
c- Essential oils
d- Cardiac glycosides

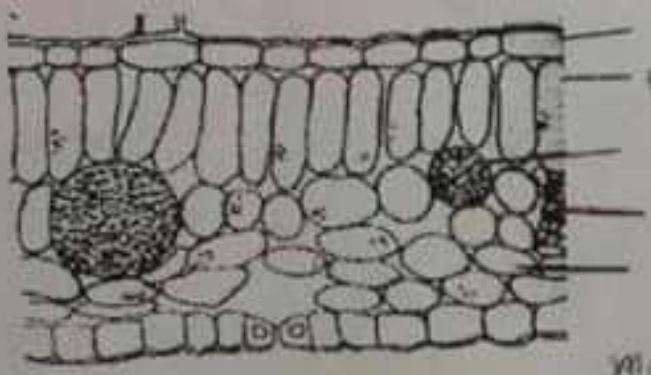
3- This key element is _____ _____ found in _____

4- Define Alkaloids

5- What plant does lanatoside A come from?

6- Factors affecting in collection of crud drugs

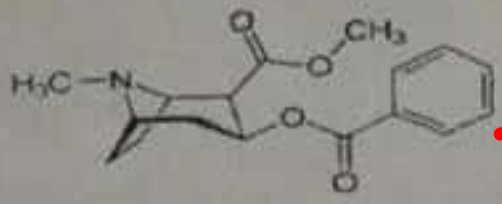
7- What plant can you find this structure? Name the elements at the arrow place?



palesade tissue

mention

8 Named this structur and its uses



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A-Diagramatize (10):

1- T.S of Datura pupura

2- microscopical character of senna leaves

B-Chose the correct answer (15)

1- the name of *Digitalis purpurea* is depend on:
- a- geographical source
- b- certain aroma
- c- characteristic color

2-collapsed celled covering tirchome is found in
- a- senna leaves
- b- digitalis leaves
- c- buchu leaves

3-contraindication of digitalis is
- a- congestive heart failure
- b- Cerebral haemorrhage
- c- auricular fibrillation

4- if origin of crud drug from plant it is called:
- a. Botanical origin
- b. zoological origin
- c. both a and b

5- short-day conditions peppermint leaves contain
- a- menthone.
- b- menthol
- c- menthofuran

6-senna leaves is contraindication in all except:
- a- Intestinal obstruction
- b- Laxative
- c- Colitis

7-11-Functions of a pharmacognosist
- a- know of the constituents of drugs
- b- Know the potency of the drug
- c- Both a & b

8-Borntrager test is used to test
- a- alkaloids
- b- tannins
- c- anthraquinones

9-all these compound are Cardiac glycosides except
- a- Digitoxin
- b- Digitoxigenin
- c- Gitoxin

10- which hormone *induce flowering at earlier stages*:
- a- Gibberellins
- b- *abscisic acid*
- c- *ethylene.*

11-Senna leaflets have
- a- an isobilateral structure
- a- a Bifacial structure.
- b- both a and b

12-importance of drying plants is to:
- a- Improve growing of plant.
- b- Preserved for longer time.
- c- Inhibit growing of plant.

13- freez drying is suitable when
- a- the volatile oil of the drug are needed
- b- plant sensitive to high temperature
- c- the plant quite stable to heat

14- Reason for adulteration:
- a- Deficiency of the drug
- b- prohibited drugs
- c- both a and b

15- nitrogenous compounds is called
- a- alkaloids
- b- glycosides
- c- tannin

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Use the best answer:

1) Urea formation occurs in:
   a) All tissues and cells
   b) Liver
2) Serotonin is formed from the ---------- amino acid:
   a) Tryptophan
   c) Phenylalanine
3) Gama-aminobutyric acid (GABA) is produced from the ---------- amino acid:
   a) Glutamine
   c) Aspartic acid
4) The Amino acid that is a donor for methyl group is:
   a) Methionine
   c) Tyrosine
5) The site for transamination and oxidative deamination processes is:
   a) Kidney
   c) Heart
6) The amino acids that are responsible for the formation of creatinine is:
   a) Arginine, glycine & methionine
   c) Glycine, aspartic acid and methionine
7) The formation of creatine and creatinine takes place in:
   a) Liver and heart
   c) Kidney and Heart
8) Increase urea level in blood is indicates:
   a) Liver disease
   c) Brain disease
9) The ATP yielded from oxidation of glucose to 2 pyruvate is:
   a) 6 or 8 ATP
   c) 2 ATP
10) The accumulation of lactic acid in muscles & blood is prevented by:
   b) Cori cycle
   c) Glycolysis
11) A process in which acetyl CoA oxidized to CO_2 and H_2O, produce:
   a) Cori cycle
   c) Glycolysis
12) ---------- is the formation of glucose from non-carbohydrate sources:
   a) Glycolysis
   c) Glycogenolysis
13) ---------- is the formation of glucose from carbohydrate storage form:
   a) Glycolysis
   c) Glycogenolysis
14) The ---------- pathway is:

(B)

b) Muscles
d) Kidney
b) Tyrosine
d) Histidine
b) Glutamic acid
d) Asparagine
b) Cysteine
d) Phenylalanine
b) Brain
b) Liver
b) glycine, glutamic acid &
d) None of the above
b) Liver and Kidney
d) Liver and muscles
b) Kidney disease
d) Heart disease
b) 36 or 38 ATP
d) None of the above
b) Krebs cycle
d) None of the above
b) Krebs cycle
d) None of the above
b) Gluconeogenesis
d) Glycogenesis
b) Gluconeogenesis
d) Glycogenesis

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حل نماذج العقاقير C/D
مراجع من د/ بشرى

Quiz C: Name:

1- Anthraquinone glycosides of Senna leaves are

(A) Aloe-emodin
(B) Kaempferol
(C) Naphthalene
(D) Isothamnetin

2- Wagner's test is used to identify

(A) Alkaloids
(B) Glycosides
(C) Hyoscyamine
(D) Volatile oils

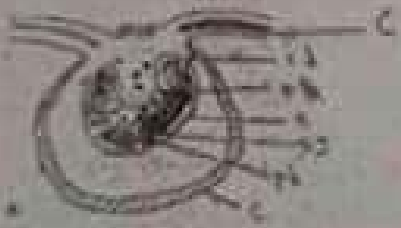
3- This key element is Stellate clustered found in Pearmint holding malina
unicellular covering trichomes Fam. mint Miclear CA of leaf U

4- What plant does pilocarpine come from? Jaborandi Type: I.E Pilocarpus microph
maranthem Subspande U

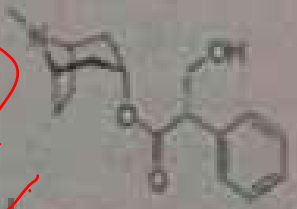
5- Define adulteration

6- What are the Factors affecting in soil quality?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place? bifacial structure → Datura Stramonium



8- Named this structure and its uses (2 uses)



hyoscyamine

uses @ for anti
Sulphonamides in gastrointestinal
& like Sulfadiazine

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Quiz A

Name:

1- The major alkaloids of Datura leaves are

a- Hyoscyamine
b- Hyoscine
c- Both a and b
d- Hyoscyamine, atropine and Hyoscine

2- Mayer's test is used to identify

a- Alkaloids
b- Glycosides
c- Hyoscyamine
d- Volatile oils

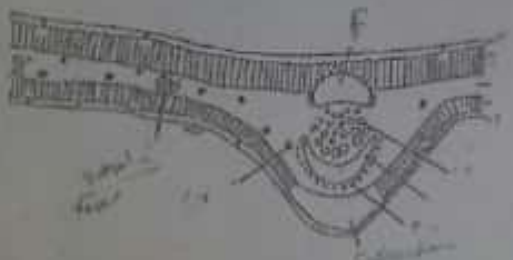
3- This key element is _____ found in _____

4- What plant does boldine come from?

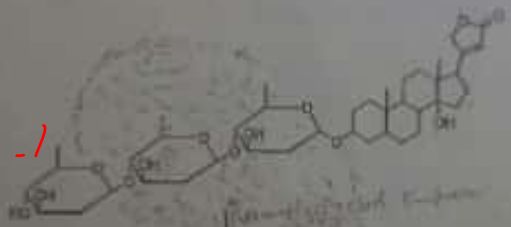
5- Define Pharmacognosy?

6- What are the Factors affecting in drug production?

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place?



8- Named this structure and its uses.



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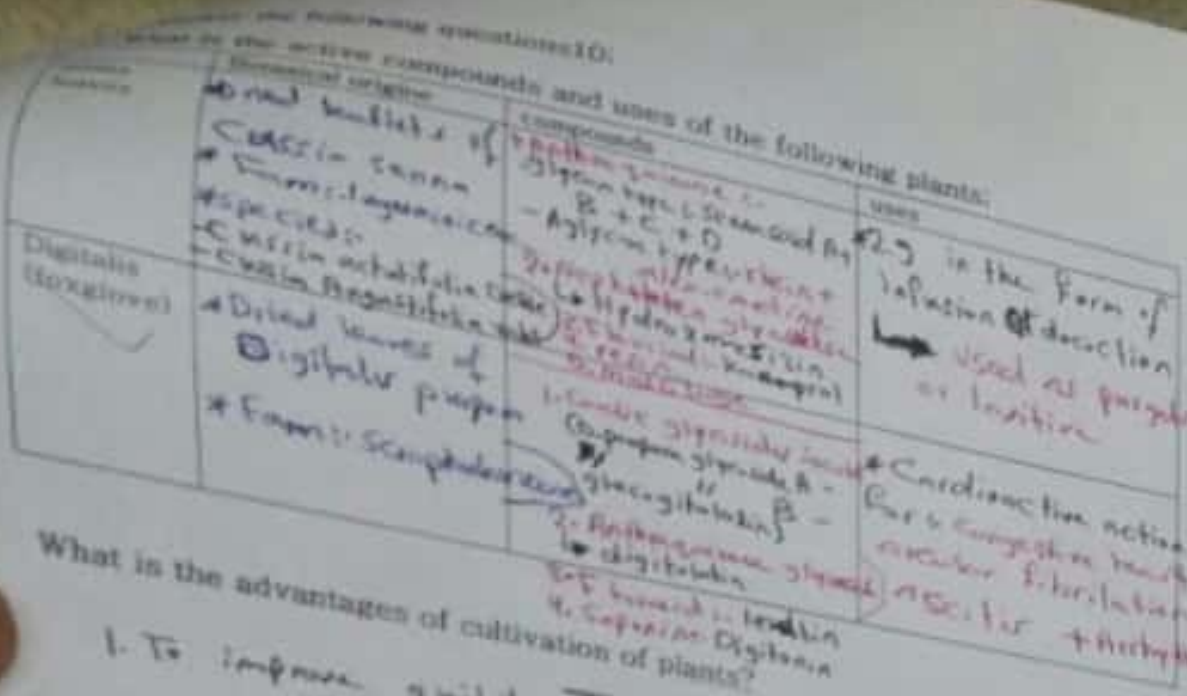

What is the advantages of cultivation of plants?

1. To improve quality and purity of the drug
   - activation of rhizomes need suitable amount of
   - and proper irrigation
   - → Systemic cultivation results in having a crop with maximum content of volatile oil eg: cultivation of cinnamon
   - → If the cultivated plants are kept away from microbial growth → no contamination
2. To improve the quality and therapetic quality
   - → this needs: 1. professional excellence in developed
   - → [Examples: wheat powdered digest
     - nicotine pungency
     - pure powder
3. To insure regular supply of crude drug

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C-Fill the blanks from the list bellow (write the number the appropriate letter)

(20)

Gossypium glabra var. *Gyaca* is found in -1- while *G. glabra* var. β- *violacea* is found in -2-./ Twisted covering trichomes is found in -3-./The fresh Saffron contains -4- which on drying undergoes decomposition to -5- which on steam distillation gives -6- which is responsible for odor./ *Carapichea ipecacuanha* Known as -7- and cultivated in -8- but *Cephaelis acuminata* , known as -9- and exported from -10- /Above of 11- varieties (A) are reddish-brown in color and are the larger than -12- variety./ Strychnine is used as a -13-./ Reserpine is used in -14- while ajmaline is used for -15./Shaggy hair is found in -16-./The active members of ergot alkaloids are derivatives of -17- e.g -18-./ Socotrine aloes from -19- species while Cape aloes from -20-.

a- hypertensive	f- Cartagena	k- Zanzibar	p- Brazil	u- ergometrinine
b- lysergic acid	g- rodenticide	l- Rio	q- *Aloe ferox*	v- purgative
c- safranal	h- Cardiac arrhythmias	m- Protocrocin	r- Colombia	w- cinnamon
d- Spanish	i- *Arnica*	n- cumin	s- isolysergic a.	x- anise
e- Penang	j- Iran	o- ergometrine	t- picrocrocin	y- *Aloe perryi*

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

D-Find 6 incorrect statements and re-write them in your answer sheet (20)

( ) *Rauvolfia serpentine* rhizome is different from *R. vomitoria* by the presence of Sclereids and has wider vessel.

( ) *Annulation* in Rio root is very crowded and more projecting than Cartagena root

( ) Cannabis consist of the dried flowering and fruiting tops of male plants of *Cannabis sativa* and cultivated in Europe.

( ) Clove is the dried flowering bud of *Eugenia caryophyllus* contains not less than 15% v/w of volatile oil

( ) The flower heads of Santonica should be collected before expanding during July and August to yield 3% of the active compound, chromosantonin.

( ) Addition of chloralhydrate to the powder of nutmeg showed fat crystals as result of the presence of tannins.

( ) The clove is in good quality when floats in water which is boiled then cold.

( ) The flowers of pyrethrum are not toxic to insects unless it is dried.

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Quiz 8 Name:

1- Toxicity of the boldo oil is as a result of

a- P-cymene
b- Limonene
c- Ascaridol
d- Coumarin

2- Sudan III is used to identified

a- Alkaloids
b- Essential oils
c- Glycosides
d- Tannins

3- This key element is _____ found in _____

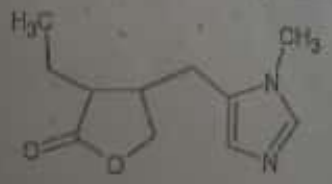
4- What plant does disphenol come from?

5- Define Crude drug

6- Factors affecting cultivation

7- What type of this structure? What plant can you find this structure? Name the items at the arrow place?

8- Name of this compounds and its uses



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C- Fill the blanks from the list bellow (just write the number -the appropriate letter) (12)

Crud drugs which are sensitive to higher temperature are dried in -1- while -2- is suitable for highly sensitive to atmospheric condition. -3- is an impairment of the quality a crud drug by distillation while -4- is the addition of an inferior material to any crud drugs with intent to defraud. Alexandrian senna is known as -5- cultivated in -6-. The cardiac glycosides-7- and -8- are obtained from-9- leaves. *Hyoscyatnus niger* is cultivated in -10-. -11- are ester of a sugar and a phenolic compound e.g -12-.

A.Sophistication	D. Egypt	G. Europe	J. Condensed tannins	M. gallic	P. Hydrolysable tannins
B.*Cassia senna*	E. digitoxin	H. Spray drying	K.Deterioration	N. Sudan	Q. gitoxin
C.Alexandria	F. Oven drying	I. foxglove	L. *Cassia angustifolia*	O. Freez drying	R. digitoxigenin

1	2	3	4	5	6	7	8	9	10	11	12
B	E	A	D	B	G	F	J	E	O	R	L

D- Answer the following questions (16):

1-Define unorganized drugs? drug containing action effective in Body

2-What are the advantages of cultivation? a-less level 2-

3-Give the main active compounds and uses of 2 drugs:

Belladonna, senna, hyoscyamus, digitalis

4-What is the chemical test for the five member ring of digitalis?

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University of Sana'a
Faculty of pharmacy

Final exam (2nd)
3rd year Pharmacognosy (2015)

A-Diagramatize (10):
1- T.S of linseed or *Ammi visnaga*
2- microscopical character of nux-vomica

II-Chose the correct answer (20)

1- Rauwolfia rhizome is different from the root by the presence of
a- a small central pith
b- stomata
c- hair

2- Schizolysigenous gland is found in:
a- senna leaves
b- digitalis leaves
c- clove flower buds

3-liquorice is used topically for
a- Peptic ulcer
b- Expectorant
c- Psoriasis

4-Non glandular hair with cystoliths of $CaCO_3$ is found in:
a. Xanthium strumarium
b. *Cannabis sativa*
c. *lobelia inflata*

5- Which compound is responsible for the sweet taste of liquorice rhizome:
a- Glycyrrhizin
b- chalcone
c- tannin

6-Papaverine is the active compound of
a- *Ammi visnaga*
b- *Hyoscyamus niger*
c- *Papaver somniferum*

7- Test for isobarbaloin give no color with:
a- Cape aloe
b- Socotrine aloe
c- Curacao aloe

8-The seed of nux vomica is
a- exalbuminaus
b- albuminaus
c- both a and b

9- The weak base alkaloids of poppy fruit is
a- morphine
b- codeine
c- noscapine

10- The powder of nutmeg seed contain:
a- Prism of CaOx
b- Cluster of Caox
c- Prism of K-tartara

11- Tragacanthin is the component of
a- Acacia gum
b- Tragacanth gum
c- Colophony

12- T-shaped non glandular hair is found in
a- Insect flower
b- Clove flower
c- Chamomile flower

13- All are Rauwolfia compounds except:
a- Reserpine
b- ajmalin
c- Gitoxin

14- The powder of flower buds of clove shouldn't contain:
a- starch
b- prism of caox
c- both a and b

15- raphides of CaOX are found in
a- Ipecacuanha root
b- Hyoscyamus Leaf
c- Ginger rhizome

16- the flower of *Artemisia cina* is used as:
a- antiinflamation
b- Antianthelmintic
c- cardiotonic

17- the seeds of cardamom should be separated recently to
a- avoid the loss of volatile oil
b- differentiate between different varieties
c- both a and b

18- Ergotamine is used for
a- migraine
b- labour
c- mental disorders

19- strychnine give a + ve test with:
a- Mandelin's reagent
b- conc. HNO_3
c- $FeCl_3$

20-Van Urk reaction is test for
a- Essential oil
b- Ergot alkaloids
c- Atropa alkaloids

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